THE

physical therapy

REVIEW

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Physical Therapists in the Army—VOGEL

Relative Strength of the Hip Rotator Muscle Group—JARVIS

Thoracic Trauma
—FORSEE, BLAKE, MONCRIEF, KYLAR, and TAYLOR

Physical Therapy in the Treatment of Burns
—PRIOR and JAEGER

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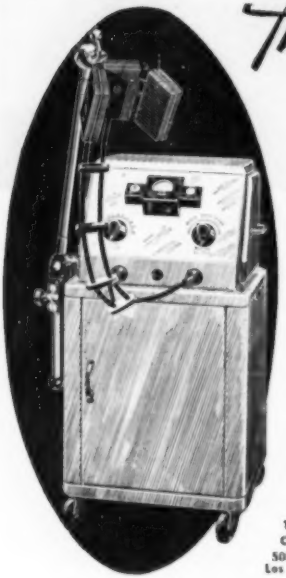

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The Physical Therapy Review

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Volume 32 **October 1952** **Number 10**

Physical Therapists in the Army*

A History from World War I through World War II

Col. Emma E. Vogel, United States Army, Retired

Physical Therapists from World War I to World War II

While physical therapists were exceedingly limited as to numbers during this period, their services were utilized in all general hospitals and in a few large station hospitals. These women were civilian employees of the Medical Department of the Army, and all matters pertaining to the overall administration and transfer of these employees were under the jurisdiction of the Chief of the Civilian Personnel Division in the office of The Surgeon General of the Army. The maintenance of high standards of performance during this period is a tribute to the superior personal and professional qualifications of physical therapists serving with the Medical Department during these years, and the Medical Corps officers under whose guidance they served. Physical therapists then worked very closely with the orthopedic surgeons. One of these officers who was outstanding in his support of physical therapy, and who in 1943 was promoted to the rank of Major General and designated The Surgeon General of the Army, was Major General Norman T. Kirk, now retired.

In 1926, The Surgeon General made an extensive study concerning the lack of opportunities for advancement afforded these employees, and, as a result, he made certain recommendations regarding grades, salaries, allowances and promotion for these specialists. The annual salaries recommended for the first year in each of the grades were as follows:

Supervising Physical Therapist	$2100
Head Physical Therapist	$1740
Senior Physical Therapist	$1560
Staff Physical Therapist	$1080
Junior Physical Therapist	$ 60

In the light of present day salary standards, these amounts seem meagre indeed. However, due to lack of funds, this salary scale was never implemented.

There was no salary increase for these employees until 1928 when, in accordance with the Welsh Act, the beginning annual salary of a physical therapist was raised to $1560 ($1440 base pay plus $120 for quarters). The Brookhart Bill passed in July 1930 raised the beginning annual salary to $1620 ($1500 base pay plus $120 for quarters).

In 1931, the question of salaries was again

*For purposes of uniformity, the term "physical therapist" is used throughout the article. In explanation, it should be stated, however, that the term designating this personnel has undergone several revisions since World War I, as follows: Reconstruction Aide from 1918 to 1926, and Physiotherapy Aide or Physical Therapy Aide from 1926 to 1944.

It should be understood that any opinions expressed in the article are those of the writer and do not reflect an official opinion of the office of The Surgeon General of the Army.

Credit is given to Major Olena Cole and Captains Jean Beatty and Mary Lawrence who assisted in the preparation of this material.

raised when the Medical Department experienced increasing difficulty in retaining its physical therapists since they could be more profitably employed elsewhere. At this time, the Supervisor of Physical Therapists at Walter Reed General Hospital made a comparative study, which clearly showed that there had been no change in their status, and very little improvement in the salaries of physical therapists since World War I. A number of Medical Corps officers on duty at that hospital who were cognizant of the qualifications and accomplishments of these women were much concerned over the discrepancies disclosed by this study and were strongly of the opinion that eventual militarization of this and allied groups would offer the only solution.

From 1923 until 1940, replacements for these employees were accomplished entirely from the graduating classes of the physical therapy courses conducted at Walter Reed General Hospital. Prior to the completion of each course, The Surgeon General directed that all other general hospitals list existing position vacancies which were then referred to Walter Reed General Hospital for recommendation. Orders assigning these graduates were then published by the office of The Surgeon General.

During all these years, physical therapists experienced considerable uncertainty as to the security of their positions due to the fact that there were no funds specifically designated for their salaries. From 1919 until 1924, the payment of salaries for this personnel was made from Medical and Hospital Department funds (M&HD). Effective July 1, 1924, these salaries were paid from funds derived from the hospitalization of patients under the jurisdiction of the U.S. Veterans Administration (VA). Under the provisions of Executive Order No. 6101, dated April 5, 1932, which implemented the National Economy Act, the number of such patients in Army hospitals was drastically reduced. As a result, the depletion of funds derived from this source occurred so rapidly that the discharge of physical therapists as well as other civilian employees paid from these funds (VA) was effected with very little or no warning. The sudden reduction from fifteen to three physical therapists at Walter Reed General Hospital was typical of curtailments which occurred in many Army hospitals. As a matter of fact, the Physical Therapy Department at that hospital would have closed its doors, had it not been for the fact that the three remaining physical therapists were willing to serve at markedly reduced salaries, and that the graduates of the physical therapy course that year volunteered to remain on duty with no compensation other than quarters and subsistence. In August 1933, local hospital funds were augmented, when the Army assumed the responsibility for the hospitalization program for members of the Civilian Conservation Corps (CCC). The salaries of physical therapists paid out of CCC funds ranged from $50 to $70 per month, in addition to quarters and subsistence.

Up to this time, Army physical therapists were civilian employees of the Medical Department with no status. Pursuant to Executive Order No. 7916, dated June 24, 1938, all civilian positions in Army hospitals which had been previously exempted under the United States Civil Service Commission rules, were included in the competitive classified group effective February 1, 1939. The change-over to the civil service status was available only to those physical therapists who had served at least six months in the position held on that date, and who had satisfactorily passed an assembled professional examination. Following this date, the salaries of physical therapists were paid entirely from appropriated funds (M&HD). At this time, initial appointment was made only in the grade of physical therapist (SP-4) with a salary of $1620 per annum, subject to current deductions for quarters, subsistence and retirement. Promotion to the grade of head physical therapist (SP-5) with a salary of $1800 per annum was accomplished only upon recommendation after a period of satisfactory service.

In 1938, the thirty-seven physical therapists employed in Army hospitals were distributed as follows:

Walter Reed General Hospital, Washington, D. C.	10
Army and Navy General Hospital, Hot Springs, Ark.	4
Fitzsimons General Hospital, Denver, Colo.	6
Letterman General Hospital, San Francisco, Calif.	3
William Beaumont General Hospital, El Paso, Tex.	1
Station Hospital, Fort Sam Houston, Tex.	3
Sternberg General Hospital, Manila, P. I.	1
Tripler General Hospital, Honolulu, T. H.	1
Station Hospital, Schofield Barracks, Honolulu, T. H.	1
Station Hospital, Fort Leavenworth, Kan.	1
Station Hospital, Fort Riley, Kan.	1
Station Hospital, Fort Bragg, N. C.	1
Station Hospital, Fort Francis E. Warren, Wyo.	1
Station Hospital, Fort Jay, N. Y.	1
Station Hospital, Fort Sill, Okla.	1
Station Hospital, The United States Military Academy, West Point, N. Y.	1

While there were many Medical Corps officers who believed that a military status would be highly desirable for this group of employees, no steps had been taken by the Medical Department to initiate such legislation. The first such pro-

posal was initiated outside of the military establishment on February 27, 1939, when the Honorable Morris Sheppard, Chairman of the Committee on Military Affairs, United States Senate, introduced legislation to authorize a military status for dietitians, physical therapists, and occupational therapists. An identical Bill was presented before the House of Representatives on March 10, 1939, by the Honorable Andrew J. May, Chairman of the Committee on Military Affairs of the House of Representatives. The Bills were read twice, but due to the unfavorable reaction of these committees, the proposed legislation was never brought to a vote. Commenting on these Bills, The Secretary of War stated that while his office was aware that these employees were performing an essential service in Army hospitals, the benefits to be derived from the enactment of such legislation would not be commensurate with the expenditure which would be involved.

Legislation to provide a military status for dietitians and physical therapists was again introduced before Congress early in 1940. However, this legislation, while not opposed by The Surgeon General of the Army, was again not favorably considered by the War Department since there appeared to be no necessity for militarizing these groups at that time.

Even though these early attempts to enact legislation failed, there can be no doubt that the presentation of these Bills paved the way for legislation to provide for a permanent military status which was enacted in 1947. Furthermore, the presentation of these Bills acquainted the members of Congress with the duties and responsibilities of these groups, and stimulated an interest in the status of these employees.

After the civil service status was authorized for physical therapists, replacements could only be made from lists of names submitted by the United States Civil Service Commission. Since only a few names were so reported, the Medical Department encountered many difficulties filling vacancies in these positions. Finally late in 1939, permission was given to appoint graduates of the Medical Department's physical therapy course, regardless of whether or not their names had been reported on a civil service register. In an effort to stimulate procurement, early in 1940, upon the recommendation of The Surgeon General, the position of physical therapist was upgraded to SP-5 (salary $1800 per annum) and the position of head physical therapist was upgraded to SP-6 (salary $2000 per annum).

In 1940, at the request of The Surgeon General, and in compliance with its policy of cooperation with the military service, the American Red Cross undertook to recruit physical therapists as well as other specialists for service with the Army in the event of a national emergency. Such registration was available to unmarried and otherwise qualified women who had completed an approved physical therapy course, provided they had had one year of satisfactory professional experience within two years after completion of the course. Procurement through this agency was a slow process, for in April 1940, the American Red Cross reported that in response to over a thousand announcements mailed to individuals, only forty-three had requested application blanks. Furthermore, procurement through the American Red Cross was complicated by the fact that even after enrollment with that agency, the United States Civil Service Commission required the completion of another set of application blanks in order to accomplish certification of the applicant. This duplication resulted in misunderstanding and criticism which adversely affected the procurement of this personnel.

Legislation to authorize a military status for dietitians and physical therapists was again introduced before Congress early in 1941 by Senator Morris Sheppard and Congressman Andrew J. May. The identical Bills were read twice and referred to the respective committees; however, since the War Department did not approve the legislation, no hearings were held. It was thought at that time that it would never be necessary for these civilians to serve overseas and therefore the protection of a military status appeared not to be indicated. As it turned out, dietitians and physical therapists were assigned to many of the hospital units which left the United States for overseas duty early in 1942, less than a year after this opinion was given.

In the meantime, procurement was exceedingly slow due to the fact that there were not enough trained physical therapists in the entire country to meet both civilian and military needs which were rapidly increasing in all of the Armed Forces. Then too, many of these specialists were reluctant to leave positions of security to volunteer for service in the Medical Department which offered no assurance of protection and very little opportunity for advancement. From among those who left civilian positions, sometimes very interesting and lucrative ones, there was often criticism of mal-assignment and general unhappiness due to the many problems associated with the civilian status. This can be readily understood when it is remembered that under United States Civil Service regulations, administrative control of this

group of employees was not delegated to the office of The Surgeon General of the Army, but was decentralized to the various Civil Service Districts. As a result, the appointment and assignment of physical therapists was many times effected by personnel having no professional knowledge or experience in this field. Under such circumstances, accepted educational standards for appointment were frequently not adhered to, and complaints from professional organizations interested in maintaining high standards for this group were not unusual. In an effort to curtail these irregularities, The Surgeon General published several circular letters setting forth requirements for appointment and directing that all physical therapists not meeting accepted educational standards be discharged. During this difficult period, the American Physical Therapy Association cooperated in every way possible, frequently urging its members to volunteer for service and to enroll with the American Red Cross.

By this time, it was apparent that the civil service status for physical therapists with the Army was unsatisfactory for the following reasons: 1. Due to policies delegating to the regional offices authority to appoint physical therapists, the maintenance of accepted educational standards for appointment was often jeopardized; 2. Except in an acute emergency, hospitalization and medical and dental care were not available to these employees; 3. Often government quarters were not available (with a housing shortage in the areas adjacent to military installations, this situation posed a serious morale factor); 4. The hours of duty as prescribed by the United States Civil Service Commission often were not in accordance with the needs of the Medical Department; 5. Transportation to the employee's first assignment was usually not provided by the government; 6. If serving overseas, the physical therapist was afforded little protection or security, yet was subject to the same risks and hazards as others having military status.

This is the first of a three-part article by Colonel Vogel which will be completed in the next issue of the *Physical Therapy Review*.

Relative Strength of the Hip Rotator Muscle Groups

Dorothy K. Jarvis, M.A.

It has been reported by those familiar with manual muscle testing that the strength of the hip rotator muscles seems to vary according to the position in which they are tested. This has been a subjective observation, however, based upon individual opinion. With the recent development of more satisfactory instruments for the measurement of joint movements, it was believed of value to attempt to determine whether actual differences exist in force exerted by the hip rotator muscles when the hip is flexed and when it is extended.

Data for this study were obtained by measuring the force of the hip rotator muscles with the subject in the sitting and backlying positions, following the two "standard" positions now accepted in manual muscle testing. The force in pounds exerted at two different points in the total arc of motion was measured. These data were designed to show (1) strength differences of the rotator groups with the hip flexed and extended, and (2) relative strengths of the internal and external rotator muscles.

Strength measurements were obtained by the use of an electronic instrument developed by Dr. Willis Beasley, of the United States Public Health Service, Bethesda, Maryland. Fifty normal women, ranging in age from twenty-one to fifty years, served as subjects. Statistics for each motion are based on mean figures for three tests within a

Chief Physical Therapist, Sacred Heart Hospital, Spokane, Washington.

Presented to the Research Section, at the annual conference of the American Physical Therapy Association at Glenwood Springs, Colo., June 1951. This material has been abstracted from a thesis submitted to the Division of Physical Therapy, Stanford University, in partial fulfillment of the requirements for the degree of Master of Arts. The electronic instrument for force measurements used in this study was made available through a grant from the National Foundation for Infantile Paralysis.

range of five pounds. Thus twenty-four hundred tests were given to secure data for this study.

The strength of the hip rotator muscle groups was determined by a "break" test, the procedure usually followed in manual muscle testing. Tests were given in the following positions:

1. Sitting test position
   a. With the leg at the intermediate point in the total arc of motion (to be defined later)
   b. With the leg at the end of the range of internal and external rotation
2. Backlying test position
   a. With the leg at the intermediate point in the total arc of motion
   b. With the leg at the end of the range of internal and external rotation.

The "end of the rotation range" indicates the position in the total arc of motion at which the subject reached his maximum *active* rotation. The term "intermediate point," a point of reference selected for this study, requires some explanation. With the patient in a sitting or supine position, the knee was flexed to 90 degrees over the edge of the support provided, with the lower leg hanging free and thus vertical to the floor. The midline of the patella and midline of the dorsum of the ankle were in line with the anterior superior spine of the ilium. This was the starting point from which the degrees of internal and external rotation were measured. From this position, referred to as zero degrees, the stationary arm of a goniometer was adjusted parallel to the midline of the tibia. The leg was then moved laterally ten degrees as recorded on the protractor to the "intermediate point." This provided the small arc necessary to perform a "break" test and yet not carry the leg past zero degrees. The measurements for external rotation were made in the same manner except that the leg was moved medially. The "intermediate point," then, was not necessarily midway between external and internal rotation limits.

As a portion of the background material for this study, the muscles acting in hip rotation were reviewed in the literature. The results show some difference of opinion. *(See Figure 1.)* The left-hand column represents the number of sources of the total thirty-seven investigated who gave the muscles listed at the left as external rotators. The long bars indicate that the usually accepted hip external rotators were given in each instance—the gluteus maximus and the six small external rotators. Three primary internal rotator muscles were

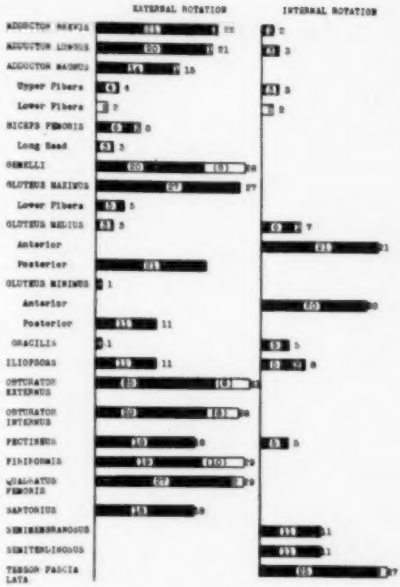

Figure 1. Number of authors of total thirty-seven who mention rotatory action of the hip muscles. White area: number of authors who mention rotation in combination with another motion or with hip joint in certain position.

the gluteus minimus, the tensor fascia lata, and the anterior portion of the gluteus medius. The iliopsoas and the adductor group were given in both columns but were more often mentioned with the external rotators. An interesting point here is the considerably greater number of external rotator muscles listed as compared with the internal.

Results

Results of the tests were studied first with regard to comparison of right and left sides. As no significant difference was found to exist between the two extremities the data from both were grouped for further consideration. Thus, one hundred observations for each test were available.

Next, the test forces obtained from the internal and external rotator groups were compared. *(See Table 1.)* Mean force, standard deviations, and ranges of force for the hip internal and external rotator muscles of all extremities tested are given here. With the hip in the flexed position, the

TABLE I

Force in Pounds Exerted by the Internal and External Hip Rotator Muscles at Two Points in the Range of Motion (Right and Left, N=50)

INTERMEDIATE POINT

	SITTING			BACKLYING		
	Mean Strength	Standard Deviat'n	Range of Strength	Mean Strength	Standard Deviat'n	Range of Strength
Internal Rt.	29.5	10.3	58.0- 7.5	21.0	8.4	47.3- 8.5
Rotators Lt.	31.1	9.9	59.3-11.1	21.1	8.1	48.6- 5.5
External Rt.	25.1	6.7	36.0-10.3	26.3	8.5	43.0-15.0
Rotators Lt.	24.3	6.4	41.0- 9.0	24.4	8.0	44.0- 9.3

END OF RANGE

	SITTING			BACKLYING		
	Mean Strength	Standard Deviat'n	Range of Strength	Mean Strength	Standard Deviat'n	Range of Strength
Internal Rt.	28.6	9.5	47.6-10.2	21.8	8.1	39.3- 9.3
Rotators Lt.	28.8	9.8	57.3-14.3	21.8	8.4	43.3- 7.5
External Rt.	23.1	6.4	42.3-11.6	24.3	6.1	41.0-13.0
Rotators Lt.	23.6	6.8	39.6-13.3	24.7	7.2	40.3-12.8

mean strength of the hip internal rotator muscles at the end of the active range was greater by 22.7 percent than that of the external rotator muscles (28.7 pounds as compared with 23.4 at the end of the range of motion). With the hip in the extended position the situation was reversed; that is, the external rotator muscles exerted greater strength by 12.4 percent than the internal hip rotators (24.5 pounds and 21.8 pounds).

Strengths at the intermediate point of the arc were compared with those at the end of the range of motion. Here data indicated slightly greater strength at the intermediate point than at the end of the range of motion in three of the four positions tested. In the fourth position, strengths at the two points were nearly equal.

Finally, mean strength differences exhibited by the hip rotator muscles in the sitting as compared with the supine test position were investigated. In the case of the external rotators, although values were higher in the hip-extended position there was no significant difference in the two positions. At the intermediate point, mean figures for 100 extremities were 24.7 and 25.3 pounds for sitting and backlying tests, while at the end of the range they were 23.4 and 24.5 pounds. However, the internal rotators showed a decided change in force with a difference of 44.3 percent at the intermediate point in the range. Here the sitting test yielded a mean for all subjects of 30.3 pounds as compared with 21.0 pounds for the backlying test. At the end of the range the difference was 31.6 percent, with 28.7 pounds for the sitting and 21.8 pounds for the supine test positions.

An explanation for the variation in rotational force might be the factor of leverage. The muscles of inward rotation seem to be pulling more nearly in a direction of thigh rotation when the hip is flexed, while their line of force is more oblique when the hip is extended. The reverse appears to be true in the case of the external rotators.

Another factor in analyzing strength variations is the fact that a muscle is least able to exert tension at the end position of its complete contraction. This probably accounts for differences in force exerted at the intermediate point and at the end of the active range of motion.

The review of literature brought out several opinions that certain muscles or parts of muscles may function in rotation only when the hip is flexed or extended. Such a variation in muscle participation could influence the force of the motion.

From these data it would appear that a grade given by a physical therapist performing a muscle test on the hip external rotators with the patient in the sitting position might compare reasonably well with that of another who gave the test in the backlying position. But in the case of the internal rotators, if the tests were given with the patient in the sitting position by one therapist and in the backlying position by another, a discrepancy in grade might be expected. Also, in therapeutic exercise better performance may be expected of the hip internal rotators with the hip in the flexed position.

Summary

From the results of the tests given to fifty subjects, the following statements may be made:

1. The right and left hip rotator muscle groups exhibit no significant difference in strength.
2. The strength differences of the rotator muscle groups at the "intermediate point" and at the end of the range of active rotation are slight.
3. When the thigh is flexed, the hip internal rotator muscles exert greater force than the hip external rotator muscles, while with the thigh extended, the external rotator muscles exert greater strength than the internal group. This is found to be true at the intermediate point as well as at the end of rotation.
4. The force exerted by the hip *internal* rotator muscle group varies with the position of the thigh. With the thigh flexed to a right angle, a significantly greater force is exerted by the internal rotator muscles than when the thigh is extended. The force of the hip *external* rotator muscle group is not influenced significantly by the position of the thigh, although it is slightly greater when the hip is in the extended position than when the hip is flexed.

(While bibliography has not been appended, this thesis is available through Interlibrary Loan, Stanford University.)

Figure 2. Method of stabilization used in making force measurements.

ATTENTION!

There is a critical need for physical therapists to serve in polio epidemic areas. The 1952 polio incidence is high and requests for temporary assignments have been received much earlier than in previous years.

If you know of a physical therapist who can be made available please communicate at once with:

Polio Recruitment Service, 1790 Broadway, New York 19, N. Y. or call Judson 6-2932 collect.

Thoracic Trauma*

James H. Forsee, Colonel, M.C., U.S. Army; Hu A. Blake, Major, M.C., U.S. Army; William H. Moncrief, Lt. Col., M.C., U.S. Army; Stephen L. Kylar, Major, M.C., U.S. Army; Vann S. Taylor, Major, M.C., U.S. Army

Since the beginning of the Korean conflict, approximately 300 battle casualties with thoracic injuries have been treated at Fitzsimons Army Hospital. This discussion of the management of the problems encountered will emphasize the physical therapy aspects.

Intrathoracic Foreign Bodies

A frequently encountered problem is the removal of metallic foreign bodies from the lungs, mediastinum, and heart. It is impossible to accurately predict which of these retained missiles will cause difficulty and all are regarded as potentially dangerous. Missiles in the lung over 1.0 cm. in their greatest diameter are generally removed.

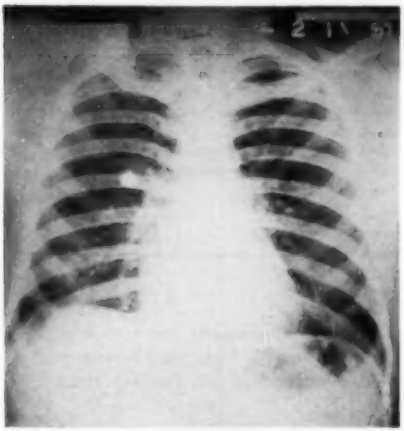

Figure 1. (Case I) Chest roentgenogram showing metallic fragment in right lung.

From the Surgical Service, Fitzsimons Army Hospital, Denver, Colorado and Department of Surgery, University of Colorado School of Medicine, Denver, Colorado.

*Read at the 28th Annual Conference of the American Physical Therapy Association, Glenwood Springs, Colorado, June 16-22, 1951.

Case I—A 24-year-old soldier was injured in the right chest by a land mine explosion January 20, 1951. At the time of injury the patient was wearing five thicknesses of clothing. Upon arrival at Fitzsimons there was a 1.0 cm. metallic fragment lying in the superior division of the right lower lobe. *(See Figure 1.)* Roentgenograms showed no surrounding parenchymal reaction or abscess formation. Thoracotomy was performed and the missile and the clothing fragments accompanying it were removed. *(See Figure 2.)* A potentially serious situation exists where such debris is allowed to remain embedded in the lung.

Case II—This 20-year-old soldier was wounded in the left chest by machine gun fire September 20, 1951. Roentgenograms showed a sharp-pointed 30-calibre bullet lying in the lung parenchyma opposite the aortic knob. *(See Figure 3.)* Fluoroscopically, the missile could not be separated from the aorta and with each pulsation of the heart the bullet was driven sharply laterally. Thoracotomy was performed and the bullet which lay ⅛ inch from the aorta was removed. Postoperative course was uneventful. Roentgenogram ninety days after thoracotomy is seen in Figure 4.

Case III—This 20-year-old soldier was wounded by a grenade fragment. The missile passed through the right lung and lodged in the mediastinum. Lateral roentgenogram showed a large irregular metallic fragment in the upper mediastinum. *(See Figure 5.)* At

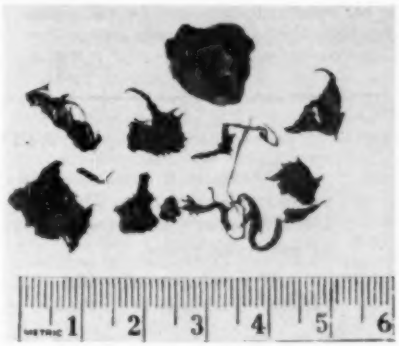

Figure 2. (Case I) Large irregular metallic fragment (center above) and bits of clothing (below) removed from right lung.

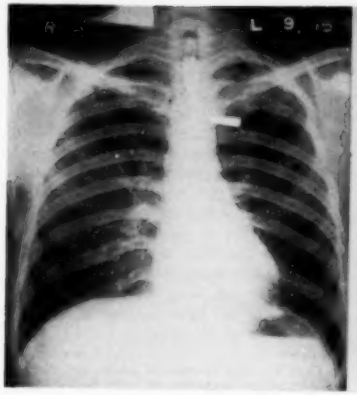

Figure 3. (Case II) Chest roentgenogram. Sharp nose of bullet lies one-eighth inch from the wall of the aorta.

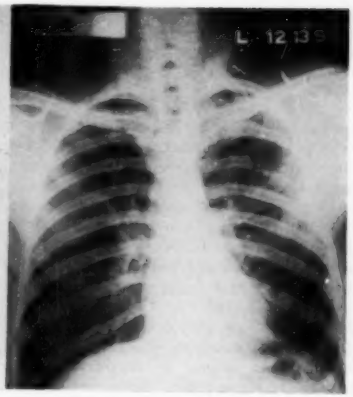

Figure 4. (Case II) Roentgenogram 90 days after thoracotomy, showing normal appearance and regenerating rib.

bronchoscopy a portion of this fragment was seen to have eroded and penetrated the wall of the right bronchus. Thoracotomy was performed and the missile removed from the wall of the bronchus and the bronchus repaired. Recovery was uneventful.

Case IV—An 18-year-old soldier sustained a penetrating wound of the right chest. The missile failed to emerge. Roentgenograms revealed the metallic foreign body lying within the cardiac silhouette. *(See Figure 6.)* Fluoroscopically the sharp and synchronous movements of the metallic fragment with the cardiac pulsations indicated an intracardiac position. Angio-cardiography localized the foreign body to the intraventricular septum with some protrusion into the cavity of the right ventricle. Due to three recurrences of a pericardial effusion, removal was advised and performed. Postoperative recovery has been uneventful.

There has been no operative mortality in these patients who have had removal of the intrathoracic foreign bodies. The morbidity has been low and

Figure 5. (Case III) Lateral roentgenogram. There is a large metal fragment lying in the mediastinum.

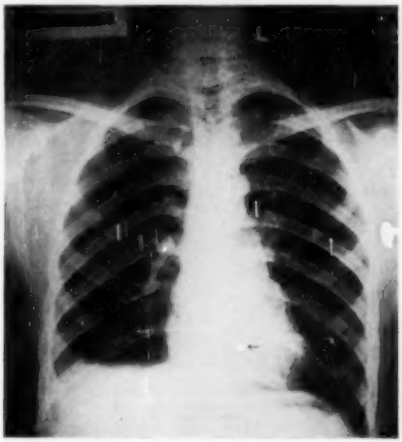

Figure 6. (Case IV) Chest roentgenogram. A metal fragment is seen lying within the cardiac silhouette.

all patients have been returned to military duty. These results attest to the excellent physical therapy procedures carried out pre and postoperatively.

Decortication

Hemothorax following chest injury may result in chronic debility, a contracted thorax with poor respiratory excursions, and often seriously impaired pulmonary function. To prevent these sequelae, "decortication" is often advocated. This is not a new procedure, having been performed in 1893; however, it was not until World War II that it received great impetus and wide recognition when the technic was perfected and the results of large series of cases evaluated.

Approximately ten percent of battle-incurred traumatic hemothoraces show evidence of extensive clotting and some degree of organization. The process of hemo-organization begins with the laying down of a thin film of fibrin and blood cells over both pleural surfaces. The hemothorax thus becomes a closed hematoma of the pleural space. The pleura itself does not become thickened but remains a thin, translucent, grossly normal membrane. When fully developed at about three to four weeks, the "peel" forms a tough, elastic membrane which invests the visceral pleura effectively preventing pulmonary reexpansion. The occurrence of infection in a hemothorax tends to increase the thickness of this membrane.

From a technical standpoint, the "peel" is most easily removed in from three to five weeks in uninfected cases. Decortication entails open thoracotomy and the technic does not differ appreciably whether or not infection is present in the hemothorax. The cleavage plane between peel and visceral pleura once established is rather easily followed and the interlobar fissures are dissected free. In removing the parietal peel the parietal pleura is often sacrificed. At the termination of the procedure the lung is completely reexpanded by the anesthetist with positive pressure and any gross defects of the lung parenchyma are repaired. Underwater seal tube drainage is established at the termination of operation.

Figure 7. (Case V) Empyema sac removed intact. Note indentations made by ribs.

Case V—This 22-year-old soldier suffered a penetrating wound of the right thorax with laceration of the right lung, right diaphragm, and liver, when wounded in action September 1, 1950 in Korea. He immediately underwent exploratory thoracotomy and repair of lung and diaphragm, and was evacuated to the Zone of the Interior, arriving at Fitzsimons Army Hospital on September 18. On arrival he was febrile, toxic, and complained of marked shortness of breath. Examination revealed a flattened right hemithorax, narrowing of the intercostal spaces, and almost no expansion on inspiration. Roentgenograms of the chest revealed partial collapse of the right lung, elevation of the right diaphragm, narrowing of the intercostal spaces, and a loculated hemothorax, which on aspiration proved to be infected with hemolytic staphylococcus aureus. Repeated aspirations resulted in removal of fluid but no reexpansion of the right lung, and on November 3, the patient underwent right thoracotomy and decortication. The pleural peel, with central empyema cavity was removed in toto. *(See Figure 7.)* Reexpansion of the right lung and resumption of diaphragmatic excursions occurred with return of motion to the right hemithorax. Pulmonary function was restored to normal values.

Case VI—A 19-year-old soldier was wounded in action in Korea on September 19, 1950, suffering a penetrating thoraco-abdominal wound, right, and multiple wounds of the right lower extremity. He was evacuated to Fitzsimons Army Hospital, arriving October 19, 1950, toxic, febrile, and showing marked weight loss. There was minimal excursion of the right hemithorax and roentgenogram revealed no aerated lung beneath the infected hemothorax. *(See Figure 8.)* Decortication was deferred for management of the colostomy and general rehabilitation of the patient. In the meanwhile, open drainage of the right empyema was effected with some reaeration of the right lung, but there still remained marked limitation of motion of the right hemithorax. On April 1, 1951, the patient underwent exploratory thoracotomy, decortication, and closure of the chest wall defect. Aided by extensive immediate physical therapy, early rehabilitation of the patient was accomplished with complete mobilization of the right hemithorax and complete expansion of the right lung with marked improvement of pulmonary function. *(See Figure 9.)* The importance of the physical therapy in insuring this result can not be overemphasized.

Figure 8. (Case VI) Chest roentgenogram showing no visible aeration of the right lung.

Figure 9. (Case VI) Chest roentgenogram after decortication.

Pulmonary Function Studies

The rapid developments in thoracic surgery have stimulated increased interest in finding objective methods for evaluating pulmonary function. As pulmonary function is often seriously impaired in injuries to the chest with a complicating organized hemothorax, our interest in this relationship has been particularly stimulated. The early restitution of pulmonary function becomes a major problem to the thoracic surgeon, the physiatrist, and others constituting the team dealing with battle casualties.

A practical and objective means of estimating pulmonary function has been bronchospirometry. These determinations are first made for both lungs together (external spirometry) to evaluate total pulmonary function and then for each lung separately (internal spirometry) to evaluate the function of each separately but simultaneously.

The reduction of the chest wall mobility and the collapse of the underlying lung interfere markedly with the ability of the respiratory apparatus to ventilate gases in and out on the damaged side. After freeing of the chest wall and the underlying lung, the ventilation increases immediately, this increased ventilation being followed by a proportional increase in oxygen consumption. When the oxygen consumption does not increase with the increased ventilation in the reexpanded lung, fibrosis with obliteration of portions of the pulmonary vascular bed is thought to have occurred. *(See Figure 10.)* Thus, the time factor is important. The longer the lung remains collapsed, the more likely fibrosis is to occur. Postoperative training in selective breathing corrects the disuse atrophy of the intercostal musculature, insuring further increase in and restoration of pulmonary function to the normal pre-injury status.

Physical Medicine Aims and Procedures

From the experience gained from thoracic surgery patients at Fitzsimons Army Hospital prior to the present conflict, the value of physical treatment in patients with thoracic injuries and those undergoing thoracic surgery had been established. With the influx of chest injury cases from Korea, this phase of physical medicine has been intensified.

In patients with thoracic injuries, and in those undergoing thoracotomy for retained metallic foreign bodies and clotted hemothoraces, the following deformities may occur unless preventive and corrective measures are taken:

1. The head and neck tend to be flexed laterally toward the affected side.
2. The shoulder on the affected side tends to assume an anterior and depressed position.
3. The hip tends to be elevated on the affected side, the body weight appearing to be carried on the opposite hip.
4. The chest tends to be flattened and inactive on the affected side, with narrowing of the intercostal spaces.
5. There may be a long scoliotic curvature of the thoracic spine convex to the unaffected side.

The presence of these deformities tends mechanically to prevent maximum reexpansion of the lung on the affected side.

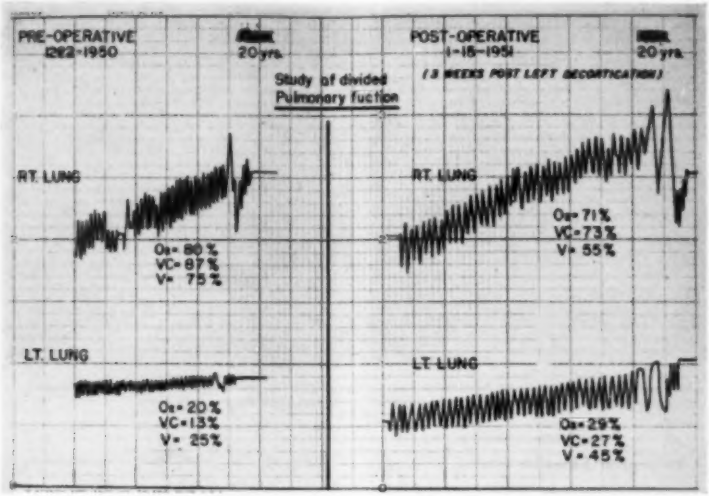

Figure 10. Respiratory tracing. Left side of figure shows low respiratory excursions of left lung before operation. Three weeks later, following decortication, a marked increase in the respiratory excursions is seen following the mechanical freeing of this lung.

Upon referral to the Physical Medicine Service, an evaluation of body mechanics, shoulder range of motion, and mechanics of respiration is made and appropriate measures instituted to overcome any abnormality noted. To prevent or correct these deformities the following program of physical treatment has been carried out.

Preoperative Orientation and Instruction

Three to five days prior to surgery, the patient is oriented in the physical treatment which he is to receive. The aforementioned deforming tendencies are explained to the patient as his cooperation is vital to the success of the treatment. A preoperative vital capacity determination is obtained. Instructions in correct bed alignment, exercises to mobilize the shoulder on the affected side, and pressure chest expansion exercises are given. The first two are self-explanatory but pressure expansion exercises require further elaboration.

The general aim of pressure expansion exercises is to gain full expansion of the affected side of the chest (or both sides) in order to restore the lung capacity to its maximum and to prevent or correct chest deformity. The particular aim is to gain localized expansion by means of pressure on the area of the patient's chest where movement is restricted, and at the same time, to inhibit movement in any overworked parts. The pressure fixes the patient's attention on (1) the exact part to be expanded, and (2) the direction in which expansion is required. Working against pressure strengthens the weakened inspiratory muscles, as it is a form of resisted active movement, and it brings about mobilization of the ribs.

Pressure is applied by means of the palm first over the anterolateral aspects of the lower ribs, because of the importance of reexpansion of the large basilar portion of the lung. This is known as the lateral expansion exercise. When expansion in this area is improving satisfactorily, pressure is given a little more cephalad for expansion of the middle lobe and lower portion of the upper lobe area. This procedure is termed the upper lateral expansion exercise. Finally, with satisfactory accomplishment of this exercise, pressure is added over the pectoral and apical regions of the upper lobe. This area as a rule is the most difficult in which to obtain isolated movement. Posterior basilar expansion against pressure is utilized after the patient becomes ambulatory. This is best accomplished by using a belt or web strap for pressure because of the mechanical difficulty of applying pressure with the palm over the posterior basilar area of the chest.

Immediate Postoperative Phase

Pressure expansion exercises are begun on the ward as soon as the patient has reacted from his anesthesia. The physical therapist aids the patient in proper bed positioning and assists him in shoulder mobilization exercises. The exercises are given in progression and in keeping with the patient's exertion tolerance and physical condition. The patient is instructed to perform his breathing exercises for five minutes out of each waking hour and to continue his shoulder exercises at three-hour intervals.

Intermediate Postoperative Phase

When the patient becomes ambulatory, usually within seven to ten days after surgery, he reports to the Physical Therapy Clinic for continuation of the treatment instituted on the ward. As soon as the sutures have been removed and the thoracotomy wound has healed, friction massage is given to overcome and prevent adherence of the scar. In addition to one period of individually supervised physical treatment daily, pressure expansion exercises, shoulder mobilization and muscle strengthening exercises, and corrective body mechanics are carried out in a group once daily. Vital capacity determinations are recorded at weekly intervals. The vital capacity measurements serve as an incentive to the patient as well as a gross evaluation of pulmonary function.

Late Postoperative Phase

When the patient has obtained good body mechanics, full range of motion of the affected shoulder, and a non-adherent thoracotomy scar, he is given general body exercises in the Physical Reconditioning Gymnasium in addition to continuation of group therapy in Physical Therapy. This further prepares him for normal activity while on a 30-day convalescent leave. The uncomplicated case has gone on leave 21 to 30 days postoperatively. He is instructed to continue pressure expansion exercises while on leave. Vital capacity determinations are made prior to and upon return from leave.

Summary

In thoracic injuries requiring operative management, the full use of physical medicine procedures has appreciably contributed to excellent end results. Morbidity is lowered by early obliteration of the pleural space by pressure expansion exercises. Postural deformities are prevented or, if already present, corrected. Shoulder mobility is preserved by movements begun soon after return from surgery. Complete rehabilitation is possible only through the closest cooperation of the physiatrist, physical therapist, and thoracic surgeon.

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Our Book Reviewers for October

Capt. Dorothy I. Glidden, Physical Therapist, Fitzsimons Army Hospital, Denver, Colorado.

Darrell D. Hunt, Technical Director, School of Physical Therapy, Mayo Clinic, Rochester, Minnesota.

Capt. Margaret P. Ladd, Physical Therapist, Department of Physical Medicine, Walter Reed Army Medical Center, Washington, D. C.

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Margaret Moore, Chief Physical Therapist, University of North Carolina Hospital, Chapel Hill, N. C.

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Harold D. Storm, M.D., Director of Physical Medicine and Rehabilitation, State Insurance Fund, San Juan, Puerto Rico.

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Physical Therapy in the Treatment of Burns

Margaret M. Prior, B.S., and LaVonne Jaeger, B.S.

The successful treatment of burns in any case severe enough to be hospitalized is the result of close cooperation among all who are concerned with the patient's care—the physician, the nursing staff, the dietitian, the anesthetist, the laboratory technician, and the physical and occupational therapists. Since each patient is an individual problem, no set rules can be laid down to govern all cases. Careful observation of the patient's daily progress, and the adjustment of treatment to that progress is the key to his successful rehabilitation.

The program as outlined below has been followed at the Mary Free Bed Guild Convalescent Home and Orthopedic Center, Grand Rapids, Michigan where the authors are members of the physical therapy staff. Before the patients who are discussed in this paper were transferred to the Convalescent Home, a series of "postage stamp" grafts had been applied and were sufficiently stabilized to allow for the treatment program as described.

The aims of physical therapy in the treatment of burns are four-fold: (1) to prevent contractures, (2) to promote healing through increased circulation, (3) to promote the early establishment of a functional circulatory system in the affected area, and (4) to soften the scar tissue. The procedures used in physical therapy in the treatment of burns are air dressing, cocoa butter massage, "gentle" stretching, passive and active exercise and, when specifically prescribed, ultra-violet irradiations to open areas.

Air Dressing

As soon as healing has progressed to a sufficient degree, i.e. grafts are stabilized and sufficient granulation tissue has been formed in other areas to support circulation and afford protection, air dressing may be used safely.

The following is our definition of air dressing: exposure of the burned area to the air without any coverings in close proximity. The early treatment applied by the physician in charge to all donor and grafted areas is sterile dressings which are held in place with a tensor bandage. As stated before, these are necessary and advantageous only until the grafts are stabilized and sufficient granulation tissue has been formed. When these dressings are removed, if only for short periods during the day, the patient is given a larger surface for heat dissipation. The relief of pressure from the bandages allows an increase of circulation to the part. This increases nutrition to build new tissue, and permits drying of the exudate which has accumulated. If the drying is sufficient, the bandages may be removed permanently. Bandages should be removed as soon as possible because daily changing slows down healing since they adhere to open areas which have not dried and remove any tissue which has formed over them.

Cocoa Butter Massage

If there is no more bleeding and excessive exudation after exposure to the air, cocoa butter massage may be started. In our experience, the application of cocoa butter massage at this time is beneficial. Liquefied cocoa butter is applied with the least pressure possible—a "feather touch." We do not attempt to evaluate the physical properties of cocoa butter, but clinically it appears that liquid cocoa butter is absorbed readily by the newly forming tissues, and we have found no other medium that lubricates the affected parts as effectively. This lubrication renders the skin more elastic, thus preventing cracks in the skin. It also minimizes adherent scar tissue and prevents contractures.

According to Pemberton and Scull, massage produces vasodilation, increases lymphatic flow and relieves pain. Bauer has shown that proteins injected into the joints of dogs are removed by way of the lymphatics. It was further demonstrated that the rate of elimination through these channels is increased by massage and passive motion of the legs. Carrier has shown that light pressure produces an almost instantaneous though transient dilatation of capillary vessels. According to A. E.

Physical Therapists, Mary Free Bed Convalescent Home and Orthopedic Center.

Cohn, this general response may occur in the very young blood vessels that are not innervated and is then apparently a direct function of the intensity of the stimulus. Pemberton states however, that, "it would be improper to suppose that the general effects of massage on the circulation are brought about through mechanical agencies alone. There can be no small doubt that the nervous system contributes under massage, probably through the sympathetic division, to a reflex influence on the blood vessels of the parts concerned. Light massage also produces rhythmic stimuli to the organs of touch which may be registered centrally in various ways, one of which is vaguely comforting, and conveys a sense of contentment." Our patients have asked for cocoa butter massage stating that it "feels so good."

Massage should not be done over the open areas or over the crusts, but if it is applied around them it will increase the immediate circulation and soften the crusts, thereby preventing their premature removal by cracking and tearing. If the crusts are properly maintained they will flake off by themselves when the underlying surface has healed.

It is recommended that upon the discharge of young children, the parents be instructed in the application of cocoa butter massage. This treatment should be carried on throughout the growth period to maintain the mobility of the scar tissue.

"Gentle Stretching"

"Gentle" stretching is a procedure which becomes necessary when contractures have formed, are forming, or must be combated. This process is much simpler and more comfortable to the patient if started before large scars develop and the contractures become fixed and impossible to stretch. The stretching should be used in conjunction with massage which will loosen the scar and free it from the underlying soft tissue.

"Gentle" stretching should be started with passive motion to all involved joints. If the stretching is started before the area has been lubricated by cocoa butter massage there may be splitting of the skin which will retard the healing and preclude any further stretching until healing takes place. It has been found that when stretching is done in conjunction with the cocoa butter massage it is not necessary to stretch to the point of pain. Stretching should be avoided whenever the desired results can be obtained by active motion.

Exercise

A regime of carefully graduated exercises is instituted as soon as treatment is initiated. The exercises are integrated with the rest of the treatment program so that when the patient returns to full activity his strength and range of motion are the maximum obtainable.

Exercises started early in the treatment program will increase circulation through the pumping action of the musculature, strengthen the weakened muscles, and maintain a range of motion in both upper and lower extremities. In case of trunk involvement, breathing exercises have been found to be beneficial.

In any case where the lower extremities are involved the patient should be gradually conditioned to the upright position. This can be accomplished by elevation on a frame, plinth, or a tilt-table to which a footboard is attached. Beginning at a few degrees, this elevation is graduated from the horizontal to a vertical position according to the patient's tolerance as evidenced by the color of his legs. Following each elevation, the patient is returned to the horizontal position and, if necessary to facilitate draining, the foot end is raised slightly. During the period of the elevation, the affected areas should be observed very closely. Cyanosis will appear almost immediately and should not be allowed to progress past what might be termed a medium cyanotic condition. The patient should be returned to the horizontal when this condition appears and the extremities drained to prevent pooling of blood (modified Buerger-Allen Exercises). If this procedure is carried out carefully, the circulation will be stimulated as evidenced by the bright red color of the extremities. We have found that a record of the elevation and draining time is helpful in checking the patient's progress. The ambulation period following this program should be as carefully controlled as the elevation procedure.

CASE HISTORIES

Case I—This patient, age 4, was burned on July 26, 1951. It was estimated that 50 percent of body surface was involved with first, second, and third degree burns as follows: a circumferential burn of the right lower extremity from high in groin to the ankle with charring; medial aspect of left lower extremity with third degree burns in high groin; deep second degree burns of lower abdomen, perineum, genitalia and buttocks. The patient was hospitalized and extensive skin grafting was done in a series of nine operations. The furacin gauze dressings with irrigating tubes were changed six times under anesthesia.

When physical therapy was prescribed, the patient presented the following picture: Both legs were fairly well healed. The grafted areas were pale with definite scar tissue formation between each graft. The skin over the knees was extremely thin. Heavy scar tissue in the inguinal region prevented full hip extension. The anterior and posterior chest were donor sites and thus presented the same problem of healing as the actual burn

Figure 1. Case I at time of discharge. Note scar formation in inguinal region.

Figure 2. Case I three weeks after discharge.

area. Much exudation occurred and dressings were applied.

Treatment included extremely light cocoa butter massage to all closed areas. Great care was exerted to circumscribe all open areas. Careful stretching was done at all joints by active exercise. Full range of motion was obtained at the knees and ankles in a short time. The flexion contracture at the hips due to scar tissue was reduced by about half at the time of discharge. Only two spots were unhealed, the right axilla and left midlateral thigh. These were healed when the child returned to the clinic two weeks after discharge.

Standing was begun four months after the accident and was tolerated for 60 seconds for four consecutive periods; draining time varied from 15 to 20 seconds. Standing time increased to 80 seconds and draining time appeared to stabilize at 15 seconds for the next three periods. When walking was started, tolerance to the upright position increased from 3½ to 7 minutes in seven days. From this time walking tolerance increased steadily to one hour of play activity per day at time of discharge. Patient was discharged six months after the accident. The patient was seen two months after discharge at which time he was given unlimited activity. The patient has been receiving daily cocoa butter massage at home and the affected area is soft, mobile, and of good color.

Case II—September 9, 1951, this six-year-old patient was burned over approximately 70 percent of his body surface. He received third degree burns circumferentially on both lower extremities, deep second degree burns on the back, and first degree burns on both arms and hands. In a period of five months fifteen operations were

Figure 3. *Figure 4.*

Figures 3 and 4. (Case II) Condition of patient when range of motion (active) exercises were given to arms and ankles. Breathing exercises were also given during this period.

performed in which "postage stamp" grafts were applied to the legs and back. These grafts were taken from anterior and lateral trunk areas, buttocks and arms.

Physical therapy was initiated with a program of active exercises for the arms combined with breathing exercises. Air dressings were also initiated. The granulating areas on the back and scapulae were, at that time, causing a loss of range of motion in both shoulders. Shortly after cocoa butter massage was started on the arms, chest and abdomen. This treatment was not applied on the legs, buttocks and back until later because the grafts had not yet stabilized.

When cocoa butter massage and active exercise were begun, this child had 15 degrees flexion in the right hip and 5 degrees in the left. In two months' time the range of motion increased to 84 degrees in the right and 65 degrees in the left. During this same period knee flexion increased from 30 degrees to 95 degrees in both legs. This patient is still undergoing treatment and it is felt that a greater range of motion will be obtained.

Elevation was started with a 4 minute elevation at 45 degrees from the horizontal with a 15 seconds draining time. Although the elevation program was interrupted for ten days for application of grafts to the back, this patient could, in one month, tolerate a 75 degree elevation for 8 minutes with a 40 seconds draining time. Vertical elevation was started at 1½ minutes with a 25 seconds draining time, and in nine days the patient could tolerate 4 minutes of elevation with a 20 seconds draining time. On the tenth day he stood for 1½ minutes with a 10 seconds draining time. In two more days the patient was walking for 3 minutes, and two weeks later he had a walking tolerance of 10 minutes with a 10 seconds draining time. Now, three weeks later, he is walking for two 45-minute periods per day.

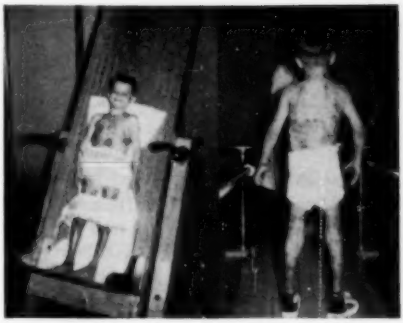

Figure 5. (Case II) Tilt table used in the graduated elevation.

Figure 6. (Case II) Ambulation training in parallel bars. Patient had momentary independent standing balance.

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Meet Our New Contributors

Col. James H. Forsee, Director, Surgical Services, Fitzsimons Army Hospital, received his B.A. and B.S. degrees from the University of Missouri, and his medical degree from Washington University School of Medicine at St. Louis.

Prior to entering the Army, Colonel Forsee was Associate Professor Clinical Surgery, University of Colorado Medical School, Denver, Colorado. Colonel Forsee is an active member of the Western Surgical Association and of the American Association for Thoracic Surgery; a Fellow, American College of Surgeons; a member of the Denver Academy of Surgery; Diplomate, American Board of Surgery, and Diplomate, The Board of Thoracic Surgery (Founders' Group).

Co-authors with Colonel Forsee of the article, "Thoracic Trauma," and stationed at Fitzsimons Army Hospital, Denver, are:

Major Hu A. Blake, Senior Resident, General Surgery Service, a graduate of Jefferson Medical College, Philadelphia.

Lt. Col. William H. Moncrief, Chief Resident, Surgical Service, who holds a medical degree from Emory University Medical School,

Major Stephen L. Kylar, Member, Staff, ENT Service,

Major Vann S. Taylor, Senior Resident, Physical Medicine Service, a graduate of Tulane University School of Medicine at New Orleans.

(Continued on page 541)

Editorials

CONFERENCE has come and gone again and with it the heartwarming renewal of many professional and personal associations. Those of you who were not able to be there were genuinely missed. You will hear, however, if you have not already, reports of all that went on from your chapter delegates and friends. You will have the opportunity of reading in the *Review* not only the scientific papers that were presented, but the reports of our Association's activities for the past year and the proceedings of the House of Delegates. You will share, I think, the feeling that predominated in Philadelphia—that our Association has definitely come of age.

Attention to the reports of the conference coupled with all that we read, hear and observe, increases our awareness of the magnitude and scope of the challenge that confronts us. Physical therapy, a pioneer in the field of rehabilitation, is a keystone in the tremendous, nation-wide program which has evolved with the broadened concept of that field. While we have a justifiable sense of gratification with the achievements of our profession, we must beware of resting on our laurels and realize that with recognition and attainment come greater problems and responsibilities. We must reevaluate from time to time our contribution to an over-all dynamic program to insure that we keep pace with the changing emphasis of the world in which we live and work. The common goal on which we are all agreed—that we give the best possible service in every way at our command to the patients entrusted to our care—does not change but the way to its achievement may.

With this in mind, it is perhaps pertinent to draw into focus some important issues which are facing us today. First, the urgency for stepping-up our recruitment program; second, the need for the expansion of our training facilities; third, the necessity for a realistic evaluation of the efficiency and economy of the present use of our professional personnel.

There are approximately 5,000 qualified physical therapists employed in this country today. It has been estimated that the additional number required to meet the projected needs of the next five years is 7,500. Last year 585 students were graduated from our schools. Although the estimated number of graduates for this year is somewhat larger, each year we have been losing from our over-all ranks by attrition more than half of the number that we have been graduating from our schools. It follows then that if we are to approach our needs we must greatly increase our student census.

A great deal has already been said of the urgency of our recruitment program. Much has been done at the national level and this year has evidenced the most gratifying activity in this regard in many of the chapters. Only the surface, however, has been scratched in orienting high school and college students to the unlimited possibilities of a professional career in our field. We all recognize the importance and effectiveness of the usual publicity media—brochures, movies, slides, talks to groups, exhibits, etc., but as individuals we sometimes lose sight of the fact that no avenue of recruitment is so effective as that of personal contact with a potential student, arranging his visit to our hospital or clinic and following through with interest and enthusiasm. This is within the province of each of us and, in the aggregate, can produce significant results. As plans go forward to step-up our recruitment program at the national and chapter levels, let each one of us triple our individual efforts toward the goal of interesting high school and college students in our profession.

Obviously an expansion of our training facilities must go hand in hand with the increased recruitment of students. It is our common conviction that in such an expansion there must be no lowering of our educational and professional standards. Through the years the scope of physical therapy has broadened markedly and a pattern of professional education has evolved to best equip the graduate to meet the demands that will be placed upon him. It is significant to note, in the evolution of our educational program, the very marked trend toward the four-year degree course with a major in physical therapy. There has been an accompanying reduction in the number of schools offering certificate courses although the need for this type of course will continue to exist for those who wish to change professions or who become interested in professional training after completion of their college work. It is important also to note that almost all schools offering certificate courses now have a minimum prerequisite of three years postsecondary school education and a number of them require four years.

The marked increase in the number of degree courses is in line with the general emphasis today on a college degree. It is readily apparent that the majority of high school students who are interested in further education and desirous of a career expect to obtain a degree. This is the educational pattern of our day and must be so recognized, particularly when we observe that in most fields a degree is one of the determinants of professional status. Such standards have not been developed without reason. It is admittedly desirable that a professional person have a general and cultural educational background as well as a professional one, to provide further opportunities for the development of his perspective, understanding, and insight. These qualifications assume even greater proportions where the profession is as intimately involved in dealing with human beings as is ours. It seems obvious, then, that the lowering of our present prerequisite educational requirements would be not only professionally undesirable, but would also net us no appreciable gain in numbers of students.

A group study is being made by the technical directors of our existing schools of the possibilities of expansion of our present training facilities—in terms of an increase in the number of spaces available as well as in the increase of frequency of classes. Expansion presents problems not only of recruitment but of qualified instructors, budget, space, and adequate clinical affiliation facilities. Physical therapy education is expensive to both the college or university and the student. These are the problems that also face the six new schools that are in the process of organization, and the nine additional colleges and universities that have indicated an interest in establishing courses within the next two or three years. They are real and serious problems whose solution will entail the understanding and cooperation of the consumer public as well as of the professional world.

Recruitment and education of students implies the future. What of the present? Federal and private hospitals, state and community programs and rehabilitation centers are all asking for more qualified physical therapists. It is obvious then that both for the present and the future we must direct our thinking and planning toward the conservation and wise apportionment of our skilled professional personnel by greater use of assistive personnel. A committee was appointed in Philadelphia to study this question and to make recommendations which might be a basis for a realistic policy for adoption by our Association.

We are all aware that the development of an "aide" group such as is used by the governmental agencies presents problems and dangers in private institutions—primarily because in our relatively new field the differences in categories of professional and subprofessional personnel would not be widely understood by all employing agencies. For this reason there are many who believe that it is wiser to limit our use of assistive personnel to the performance of housekeeping, clerical and purely routine duties. A realistic assessment of our present situation necessitates consideration, however, of another point of view. The greater use of well oriented and intelligently supervised assistive personnel in the

performance of selected treatment procedures may well be a wiser approach to our personnel problem than an attempt to spread professional personnel too thinly in areas where specialized skills are so urgently needed. It may be remarked here that the success of any plan designed to increase the scope of activities of assistive personnel would be dependent upon our recognition of the essentiality of teaching and implementing acceptable and specific technics of supervision.

These are all important issues and have many ramifications. They are our individual problems as well as those of our Association and they merit the careful thought, attention and critical analysis of each one of us. We, as individuals, must consistently demonstrate a sincere interest in our patients, and a real desire to be of service; we must be articulate in interpreting our profession to our doctors, our hospital administrators, our other professional colleagues, our patients, and our communities; we must take stock from time to time, and then action, of ways of increasing the efficiency and proficiency of our own work situations; we must make as well as take opportunities to assist in our recruitment program; we must contribute fully of our time, thought, and energy toward the effectiveness of our chapters and our national association. This is our challenge. Are you prepared to do your part to meet it?

HARRIET S. LEE, *President*
American Physical Therapy Association

IN THIS issue of the *Review*, there is a notice of another involuntary recall of reserve officers in the Physical Therapy Section of the Women's Medical Specialist Corps, Department of the Army.

I, for one, was sorry that this was necessary. It means that those who have served in the Corps must do another tour of duty because there were not sufficient volunteers.

There is no draft for women, so that there is no push to volunteer. As I pointed out in April, the Corps is an excellent employment opportunity and one to which every new graduate should give consideration along with other opportunities.

Among your associates and supervisors in the Corps are the leaders of our profession; the hospitals are among the finest; the equipment, the latest; the remuneration and opportunities for advancement better than many civilian jobs. The patients are our brothers, cousins and neighbors who need physical therapists as much, if not more, than many civilian patients, if they are to be returned to civilian life in shape to contribute to it. These are our young men and to them we have a responsibility.

To those who have recently graduated, think about the need. Over 1,700 physical therapists served in World War II. Since World War II, 2,933 have been graduated.

Here is a job, a good job, in the Women's Medical Specialist Corps. Let's have enough volunteers to more than cover the involuntary recall. Among all those graduated since 1945, there should be more than enough. It is easy to procrastinate and to say this is for someone else, not me, but it is for you if you are talking that way to yourself.

—MILDRED ELSON, *Executive Director*
American Physical Therapy Association

Courtesy of British Information Services

CENTRAL HALL

World Confederation for Physical Therapy

World Congress—London, September 7-12, 1953.

Place—Central Hall, Westminster, London.

Patron—The Duchess of Gloucester.

Attendance—The Congress is open to all members of the American Physical Therapy Association.

Guest Attendance

Provision has been made for guest registration for physicians; members of allied professions; members of fraternal organizations which sponsor and support programs for the handicapped; representatives of Departments of Health, Education and Vocational Rehabilitation; members of organizations, national and international, devoted to the welfare of the handicapped.

Registration blanks and the preliminary program will be available in the National Office of the American Physical Therapy Association in early October.

Members and guests planning to attend should write to me. If you are looking for a travel partner, I will try to get you together with one or more people going over.

Official Travel Agent

Thomas Cook and Son have been appointed Official Travel Agent by the Chartered Society of Physiotherapy. A block of rooms in London has been set aside by them to meet the needs of the delegates. It is anticipated that even in September hotel space will be limited; therefore, early planning is important. Even if your plans at this time are not complete, but you are planning to attend, let me know as soon as possible in order that room space in London may be reserved.

Program

Tentative program topics include:

Monday, Sept. 7—Physical Therapy in Neuromuscular Disorders

Tuesday, Sept. 8—Physical Therapy in Rheumatic Diseases

Wednesday, Sept. 9—Physical Therapy in Diseases of the Chest

Thursday, Sept. 10—Papers by Physical Therapists on Treatment and Research

Friday, Sept. 11—Physical Therapy in Industry

There will be several film sessions. If any member or organization has a film (16 mm.) which they would like to submit for selection, please send to me no later than November 15, the title, description of subject matter, sound or silent,

color or black and white, and running time. Selection of films to submit to the Congress Committee in London will be made by the Executive Committee.

Trade and Technical Exhibition

There will be a trade exhibition of equipment. Space will be provided for each member organization to display its own literature. In addition, there will be an Exhibition of Self Help Devices with each country contributing *five*.

Study Visits

There will be planned study visits to physical therapy departments in and around London, and a special session for instructors in physical therapy.

Social Events

In addition to the World Confederation Banquet, there will be a reception for the foreign physical therapists in one of the historical halls.

Plan Now for London—September 1953

MILDRED ELSON, *President*
World Confederation for Physical Therapy

Summary of the Minutes of the House of Delegates Meetings June 22-23, 1952

Representatives of fifty chapters attended the House of Delegates sessions leaving only seven chapters without representation. Mary E. Nesbitt, Speaker, opened the meeting with greetings from Molly McMillan, first President, and a letter of greeting directed to Miss Elson from Miss M. J. Neilson of the Chartered Society of Physiotherapy. Mrs. Harry Harvey Thomas, Parliamentarian, was introduced, and after roll call by the Secretary, Marian Williams, the Conference Rules were read and adopted. The Conference Program was officially accepted, Col. Harriet S. Lee was appointed Timekeeper, and the following committee was appointed to edit the minutes: Marian Williams, Dorothy Voss, and Clara Arrington.

Following the reports of the President, Secretary, and Treasurer, the annual reports of the standing committees were presented. Mildred Elson, Executive Director, reported on the purpose and activities of the World Confederation for Physical Therapy. Miss Elson then called a "staff meeting" of all the National Office professional staff. Mary Haskell, Assistant Executive Director, Dorothy Hewitt, Educational Consultant, Lucy Blair and Ruth Whittemore, Polio Consultants, and Margaret Moore, past Educational Consultant, contributed fully to a discussion of the work of the Association and what the National Office Staff is doing to carry it on. Recruitment, utilization of maids, orderlies and clerks in physical therapy departments, encroachment by unqualified persons, recognition of foreign trained therapists, cooperation and understanding between physical therapists and hospital administrators, physical therapy education, and legislation were some of the topics discussed. The report of the Executive Committee sessions previous to the conference, read by the Secretary, completed the reading of the reports.

Mary Clyde Singleton, President, proposed George Morris Piersol, M.D., Philadelphia, for honorary membership in the association. He had been unanimously nominated by the Executive Committee, and was elected an Honorary Member by the House of Delegates.

The Code of Ethics amendments were discussed at length, and, in general, it was agreed that the word "shall" was more satisfactory than the proposed word "must." Other changes were adopted. Bylaws amendments were presented, discussed, and adopted in due order. Amendments as adopted will be found elsewhere in the *Review*.

Two problems of importance to the profession were presented for discussion. First was the increasing demand for physical therapists; how the need is being met, and how it should be met in the future. Better distribution and better use of qualified personnel along with encouraging greater use of clerical workers, hospital aides and orderlies were suggested. The need for the continuing development of home treatment programs was brought out along with more emphasis on group technics and the advisability of incorporating such in the school curricula. Problems of state registration legislation were discussed. Several discussants felt that one of the more effective answers to the problem of encroachment lay in better orientation of the medical profession as to what a qualified physical therapist is and how his education better prepares him to provide patient care. By a show of hands the majority of the membership expressed agreement that more subprofessional help should be trained on an inservice basis.

The second item discussed was the need for additional funds to expand our program within the Association and thereby help to develop the profession. Possible ways of securing funds brought out in the discussion were grants from foundations other than the National Foundation for Infantile Paralysis, fraternal organizations and service clubs, national fraternities and sororities, philanthropic

individuals, and corporations. It was suggested that members and chapters having suggestions should send them to the Ways and Means Committee which is to be appointed by the Executive Committee.

President Singleton announced that the three projects requiring administration from the National level and for which funds are needed are (1) completion of the student selection research program, (2) development of an examination for foreign-trained physical therapists and for assisting state boards of examination in carrying out registration and licensure; and (3) the ever increasing problem of recruitment.

The possibility of increasing American Physical Therapy Association membership by contacting qualified nonmembers was also suggested.

President Singleton explained that any expression of approval of a dues raise would mean presenting it to the chapters next year for a vote. On a roll call the vote was 83 to 70 that a dues raise should not be considered until after the Ways and Means Committee has had an opportunity to study the entire problem of raising funds.

The House of Delegates voted to accept the invitation of the Southern California Chapter to meet in Los Angeles in 1954. The Executive Director, Mildred Elson, told of the advantages of setting conference dates in accordance with A.M.A. meeting dates and the necessity for determining conference sites three years in advance. She also suggested that the A.P.T.A. might wish to invite the World Confederation for Physical Therapy to meet in the United States in 1956. Eastern Missouri invited the Association to hold its 1955 conference in St. Louis and this invitation was accepted. The New York Chapter expressed the hope that it could be the hostess chapter for the World Confederation in 1956 in the event the United States extends an invitation and it is accepted.

A resolution was introduced by Washington State Chapter urging that the processing of foreign-trained physical therapists be hastened, that a National Physical Therapy Day be established to acquaint the general public with the work of qualified physical therapists, and that the House of Delegates explore and state specifically what duties can be given to untrained personnel under the supervision of a qualified physical therapist. This resolution was approved and endorsed.

A resolution was introduced by Maine State Chapter and passed that all delegates consider with their chapters the feasibility of a resolution requesting the American Medical Association and the American Hospital Association to cooperate with the American Physical Therapy Association to further better utilization of personnel through interpretation and understanding of the physical therapist's Code of Ethics.

Elizabeth Addoms proposed that the delegates give a rising vote of thanks to Floy Pinkerton for past services to the Association, and this was done.

The Speaker called on the Parliamentarian, Mrs. Thomas, for suggestions on how to improve House of Delegates meetings. Mrs. Thomas made a number of helpful comments and suggestions.

After presenting the results of the election of officers, the session was declared adjourned by the new Speaker, Jane Carlin.

—DOROTHY E. VOSS
Secretary

Amendments to the American Physical Therapy Association Bylaws and Code of Ethics

Adopted by the House of Delegates, June 1952

Bylaws

Previous Section	Amendment
ARTICLE III, *Section 3—Qualifications and Election of Members Other than Active Members.*	ARTICLE III, *Section 3—Qualifications and Election of Members Other than Active Members.*
(a) *Life Members*—Upon application an active member, who has been such for thirty or more years, shall be eligible for life membership on retirement from practice.	(a) *Life Members*—Upon application an active member, who has been such for *twenty* or more years, shall be eligible for life membership on retirement from practice.
ARTICLE III, *Section 4—Rights of Members*—Active members and life members who are in good standing are entitled to all the rights, benefits and privileges of this Association, including the right to register at sessions of the society, to attend and participate in the general	ARTICLE III, *Section 4—Rights of Members*—Active members and life members who are in good standing are entitled to all the rights, benefits and privileges of this Association, including the right to register at sessions of the society, to attend and participate in the general

Previous Section

meetings held therein, to vote, to hold office and to serve on committees subject to the qualifications set by these Bylaws for the particular offices or committees, and to receive a copy of the Association's official publication as issued. All other members who are in good standing possess all the incidents and rights of membership except the right to vote and to hold office or serve on standing committees.

ARTICLE IV, *Section 4—Limitation*—

(c)

(4) A component chapter shall permit all classes of members of this Association to attend chapter meetings but need not unless it sees fit, confer any other rights of membership on other than active and life members.

(d) A component chapter may expel, suspend, censure or otherwise discipline a member for such causes and under such procedure as is stated in the chapter's Constitution and Bylaws, provided a copy of the charges against the member is served on him, he is given at least thirty days to prepare his defense, and a hearing is held on those charges at which he is given a full opportunity to be heard in his own defense, to present witnesses and other evidence in his behalf and to cross examine witnesses and to rebut evidence presented to sustain the charges.

ARTICLE X, *Section 7—Interprofessional Relations.*

ARTICLE X, *Section 8—Public Relations.*

ARTICLE X, *Section 12—Nominations*—The Committee on Nominations shall consist of five members of the Association who have been active members or life members or a combination thereof in good standing for at least five years immediately preceding their election or appointment. The Committee shall include two members elected by the House of Delegates at the annual session held in even numbered years and three members, including the chairman, appointed by the Executive Committee.

Amendment

meetings held therein, to vote, to hold office and to serve on committees subject to the qualifications set by these Bylaws for the particular offices or committees, and to receive a copy of the Association's official publication as issued. *All other members who are in good standing possess all the incidents and rights of membership except the right to vote and to hold office or serve on standing committees or to imply by any means that they are active members.*

ARTICLE III, *Section 5—Good Standing* (new)

(a) If he complies fully with the Code of Ethics of this Association.

ARTICLE III, *Section 7—Restoral to Membership* (new)

(c) Any person who has resigned or who has allowed his dues to lapse may be restored to inactive membership if the Executive Committee approves and on

(1) Payment of inactive dues for the current year

(2) Payment of lapsed inactive dues not to exceed two years.

ARTICLE IV, *Section 4—Limitation*—

(c)

(4) A component chapter shall permit all classes of members of this Association to attend chapter meetings but *shall* not confer any other rights of membership on other than active and life members.

(d) A component chapter *shall* expel, suspend, censure or otherwise discipline a member for such causes and under such procedure as is stated in the chapter's Constitution and Bylaws, provided a copy of the charges against the member is served on him, he is given at least thirty days to prepare his defense, and a hearing is held on those charges at which he is given a full opportunity to be heard in his own defense, to present witnesses and other evidence in his behalf and to cross examine witnesses and to rebut evidence presented to sustain the charges.

ARTICLE VI, *Section 5—Conduct of Business* (new)

(b) When an interim decision is imperative, provision shall be made for a vote of delegates by mail.

ARTICLE X, *Section 6—Education* (new)

(b) Suggest and coordinate projects connected with the recruitment of physical therapy students.

ARTICLE X, *Section 7—Relations* (new). The Committee on Relations shall consist of three members. This committee shall:

(a) Direct and guide the activities of the chapters in their public relations.

(b) Suggest effective means of publicity for chapter and Association activities.

(c) Stimulate chapter and Association contacts and exchange of information with other organizations and professions.

(d) Cooperate with all standing committees and particularly the Education and Exhibits Committees.

(e) Perform such other duties as may be directed by the House of Delegates and the Executive Committee.

ARTICLE X, *Section 12—Nominations*—The Committee on Nominations shall consist of five members of the Association who have been active members or life members or a combination thereof in good standing for at least five years immediately preceding their election or appointment. The Committee shall include *three* members, elected by the House of Delegates at the annual session held in even numbered years, and *two* members appointed by the Executive Committee. The Executive Committee shall designate the chairman.

Code of Ethics

Previous Section

ARTICLE I, *Section 3*. In entering the profession of physical therapy an individual assumes definite responsibilities toward his associates and commits himself to the upholding of professional ideals. It should be well understood by each physical therapist that he acts as a representative of the whole profession and as such should conduct himself in a worthy manner.

ARTICLE II, *Section 2*. Before treating a patient the physical therapist should obtain from the physician clear and adequate information regarding diagnosis, instructions for treatment.

ARTICLE II, *Section 3*. It is the duty of the physical therapist to ascertain when the physician wishes to see the patient for reexamination and further orders, and to discontinue treatment if the appointment is not made and kept. Changes of any consequence in the patient's condition occurring between interim visits should be reported to the physician in charge without delay.

ARTICLE II, *Section 4*. The physical therapist should have a definite statement from the physician regarding discontinuation of treatment when it is no longer indicated and shall comply with this direction.

ARTICLE III, *Section 2*. The physical therapist must avoid all actions or statements which in any way might be construed by the patient as criticism of the physician in charge or his handling of the case. Likewise, disparaging remarks or implications concerning professional co-workers, particularly those who have previously dealt with the patient should be studiously avoided. It is essential that the patient have faith in his treatment and therefore desirable that he respect the professional personnel involved in his case.

ARTICLE III, *Section 3*. Specific statements concerning the patient's prognosis should be made only by the physician in charge. Definite statements from the physical therapist, however casual they may appear, may prove to be confusing or embarrassing in the course of treatment and are ill advised.

ARTICLE IV, *Section 3*. In addition to applying the techniques of the profession to the best of his ability the physical therapist should constantly strive to improve his knowledge and training in the field. He should also cooperate in teaching other qualified physical therapists and students in schools acceptable to the American Physical Therapy Association who may wish to learn his skills and thereby share and spread the benefits of his judgment and experience.

Amendment

ARTICLE I, *Section 3*. In entering the profession of physical therapy, an individual assumes definite responsibilities toward his associates and commits himself to the upholding of professional ideals. It *shall* be well understood of each physical therapist that he acts as a representative of the whole profession and as such shall conduct himself *with honor and integrity*.

ARTICLE II, *Section 2*. Before treating a patient the physical therapist *shall* obtain from the physician clear and adequate information regarding diagnosis, instructions for treatment *and, if possible, reexamination date*.

ARTICLE II, *Section 3*. *The physical therapist shall not continue treatment beyond the stated reexamination date without further orders from the physician*. Changes of any consequence in the patient's condition occurring between interim visits *shall* be reported to the physician in charge without delay.

ARTICLE II, *Section 4*. The physical therapist *shall* have a definite statement from the physician regarding termination of treatment and shall comply with this direction.

ARTICLE III, *Section 2*. The physical therapist *shall* avoid all actions or statements which in any way might be construed by the patient as criticism of the physician in charge or his handling of the case. Likewise, disparaging remarks or implications concerning professional co-workers, particularly those who previously have dealt with the patient, shall be studiously avoided.

ARTICLE III, *Section 3*. Specific statements concerning the patient's prognosis *shall* be made only by the physician in charge. *Such statements from the physical therapist may prove detrimental to the welfare of the patient.*

ARTICLE IV, *Section 3*. In addition to applying the techniques of the profession to the best of his ability, the physical therapist *shall* constantly strive to improve his knowledge *and proficiency*.

ARTICLE IV, *Section 4* (new). The physical therapist should willingly participate in educational programs but in no instance may he associate himself with the education of physical therapy students in the United States of America where the graduates are not eligible for membership in the American Physical Therapy Association. Members who are so associated at the time of the passage of this amendment shall be disciplined if they continue in this capacity longer than one year following the adoption of this amendment by the House of Delegates of the American Physical Therapy Association.

The Director Reports:

During the year the Association has kept informed regarding proposed national health legislation through the *Journal of the American Medical Association*, *Hospitals*, the *Journal of the American Hospital Association*, the *National Health Council*, and the *Washington Report on the Medical Sciences*.

The 82nd Congress adjourned on July 7 without enacting any major national health legislation. There were many controversial bills presented and considered concerned with financial aid to medical, dental, and nursing education, and for strengthening federal support for local public health units.

Discussion of these bills, both pro and con, has been reported widely not only in medical journals but in the lay press. Congress did authorize equal rights for women in the medical branches of the armed forces. This legislation has been under consideration for a long time and finally was enacted. There was no action on the bill to commission male nurses, physical therapists, and occupational therapists.

The Report of the Task Force on the Handicapped to the Chairman, Man Power Policy Committee, Office of Defense Mobilization, was published in January. The report called attention to the full use of the handicapped as a sound investment in the Defense Mobilization Program. Full use of community resources, it stated, is required to provide full rehabilitation and employment of the handicapped. They believed the "team" approach provided the best possible solution. As the basic members of the local team it named the physician, physical therapist, vocational rehabilitation specialist, and state employment representative. It was fully recognized that there were not enough personnel, and recommendations for recruitment and aid to education were made.

The needs for physical therapy personnel were also reported to the "Magnuson" Committee, appointed by the President to obtain information on the health needs of the nation. There were discussions also throughout the year with national voluntary and federal agencies regarding the need for and concerning the best use of physical therapists. A compilation of data on physical therapy and physical therapists was prepared for a meeting of voluntary agencies called by the National Foundation for Infantile Paralysis. This is called "Physical Therapy 1952" and has been sent to every chapter and to every school for use in recruitment and interpretation of needs.

It is gratifying to all of us to have physical therapy recognized for what we have always known it to be—an essential service in the physical rehabilitation of the handicapped. It is of course not enough to have this recognition; there must be more physical therapists to carry out the programs waiting to be initiated. It takes time to train a physical therapist, but only one who is fully trained can carry out the treatment procedures necessary. We feel that those who require our services are entitled to the best, and for that reason the Association is bending every effort, not only to increase the numbers of available physical therapists but to improve the quality.

—MILDRED ELSON
Executive Director

Research Section

One of the high lights of the 1952 American Physical Therapy Association conference held in Philadelphia was the scientific section. This year, for the first time, each paper was followed by a prepared discussion, an innovation which was well received by a large and interested audience. Those who did not attend these meetings may be interested in the variety of subjects presented, as well as those persons who participated. Dr. George Morris Piersol acted as moderator, and the following papers were given:

Ann H. Downer, "Strength of the Elbow Flexor Muscles." Discussed by Marian Williams.

Lucy V. McDaniel, "Pool Therapy—Its Effect on Ventilation of Poliomyelitis Patients." Discussed by Catherine Worthingham.

Gertrude Beard, "A History of Massage Technique." Discussed by Frances Tappan.

Mary Eleanor Brown, "Pre-Vocational Motor Skill Inventory." Discussed by Elizabeth Zausmer.

Miriam J. Partridge, "Electromyography in the Practice of Physical Medicine." Discussed by Ruth Hamilton.

Jean Cuthbertson, "Measurements of the Range of Active Joint Motion." Discussed by Suzanne Hirt.

Margaret P. Ladd, "The Effect of Massage, Passive Motion, and Electrical Stimulation on the Flow of Lymph from the Foreleg of the Dog."

Edith Buchwald, "A Bladder and Bowel Training Program for Patients with Spinal Cord Disease." Discussed by Mary Eleanor Brown.

The participants represented ten of the fifty-seven chapters in the National Organization and were from the following states—California, Con-

necticut, Illinois, Massachusetts, Michigan, Minnesota, New York, Ohio, and Virginia. Now is the time to make plans for Dallas. Make this project "top priority" for discussion at your first fall meeting.

Membership News

Lt. Col. Harriet S. Lee, President of the American Physical Therapy Association, has forwarded the following letter from Major Theilmann to the *Physical Therapy Review*.

Honshu, Japan
14 July 1952

Dear Colonel Lee:

Every now and then something happens that gives one that extra life and enthusiasm that means the difference between doing a job and enjoying one's work. Of such is this little story which I joyously pass on to you.

Five or six months ago our hospital admitted a number of wounded UN troops, among them one midthigh amputee, an Ethiopian. The language barrier created some difficulties when he was first sent to the physical therapy section but eventually we managed to communicate fairly well. Tafara, the amputee, was depressed as many amputees are. He made us understand that in Ethiopia he felt he would have little chance of earning his living and was quite convinced that he would never have a prosthesis. Captain Shaffer was not one to be easily discouraged. She talked much of this problem and eventually, through the officer in charge of the Detachment of Patients, a "sponsor" was found to provide a well fitting prosthesis which Tafara learned to use well. He was one proud man when the physical therapy staff in a body went to the dock to watch him walk, without help, up the gangplank. But he was still convinced that he was of little value as a worker.

Recently I heard from one of the Medical Missions in Ethiopia. Representatives of the Ethiopian government and their Army were highly impressed with the prosthesis and the dexterous manner in which Tafara used it. As a result it is planned to institute an Amputee Center to make prostheses for all Ethiopian Army casualties and, eventually, for civilians in that country. In addition, it was discovered that Tafara is "handy with his hands." This, plus his well-learned lesson on the use of his prosthesis, has resulted in his being asked to work in this Amputee Center.

Such a small beginning to spark such a tremendous project! As I remarked just the other day—"I'm sure glad I'm a PT."

Sincerely,

ETHEL THEILMANN

(Major Theilmann has been Physical Therapy Consultant to the Far East Command for the past three years, and was awarded the Bronze Star for outstanding service. She is due to return to the United States this fall.)

Marriages

Joanne Lewis of Pittsburgh, Pa., now Mrs. Joanne L. Blanchard, Orlando, Fla.

Frances M. Berresheim of Chicago, Ill., now Mrs. Frances B. Jennings, Chicago, Ill.

Lois R. Teesdale of Eugene, Ore., now Mrs. Lois T. O'Connell, Eugene, Ore.

Jean M. Clementz of Springfield, Ill., now Mrs. Jean C. Spurgeon, Springfield, Ill.

Angeline Parker of Memphis, Tenn., now Mrs. Angeline P. Miles, Memphis, Tenn.

Sallie Sloan of Bryn Mawr, Pa., now Mrs. Sallie S. Teaf, Philadelphia, Pa.

Rosemary E. Tenore of Bronxville, N. Y., now Mrs. Rosemary T. Kalonaros, Astoria, L. I., N. Y.

Markine W. Traynor of St. Paul, Minn., now Mrs. Markine T. Ostling, Kerkhoven, Minn.

Myrtle J. Lucey of Washington, D. C., now Mrs. Myrtle L. Coleman, West Point, N. Y.

Mary Parker of Oxford, Ind., now Mrs. Mary P. Barton, Fowler, Ind.

Joyce Jeffrey of Interlaken, N. J., now Mrs. Joyce J. Sutton, Interlaken, N. J.

Enid Bailey of Arroyo Grande, Calif., now Mrs. Enid B. Callahan, Hollywood, Calif.

Bessie S. Amsden of Santa Monica, Calif., now Mrs. Bessie A. McGonagle, Santa Monica, Calif.

Elaine Goldman of Newton Center, Mass., now Mrs. Elaine G. Alperin, Boston, Mass.

Patricia Gadd of Indianapolis, Ind., now Mrs. Patricia G. McIntire, Indianapolis, Ind.

Teresa Rivera of Santurce, P. R., now Mrs. Teresa R. de Diaz, Puerta de Tierra, P. R.

Margaret Graydon of Columbia, S. C., now Mrs. Margaret G. Major, Columbia, S. C.

Betty Teitsworth of Redlands, Calif., now Mrs. Betty T. Fersching, Redlands, Calif.

School News

New Student Members

Boston University

Betty Y. Anderson — Olympia Dukakis
Joanne Duffy — Barbara Reycroft
Doris Whitney

St. Louis University

Barbara Ann Milz

University of California

Constance M. Allen — Patricia L. Van Rensselaer

Faculty Changes at Northwestern University

After twenty-five years as Technical Director of Physical Therapy at Northwestern University Medical School, Gertrude Beard will retire from her position on September 1.

She opened the doors of the physical therapy department in 1927, and is credited with building its training program into one of the leading physical therapy schools in this country. Her exacting standards resulted in the excellent academic training of her students, who benefited from her sincere interest in the individual.

Another resignation effective in the fall is that of Dorothy Dean, who became an instructor at Northwestern in 1942. The NUPT Bulletin recalls, "Her treatment technics provided examples which many of us have tried to follow and her friendship and sense of humor gave us that spark of motivation so often needed."

Replacing Miss Beard is Elizabeth Wood, a graduate of the D. T. Watson School of Physical Therapy, who has taught Electrotherapy at Northwestern since 1947. She added Physiology to her curriculum in 1949, and became a full time instructor in 1950. Miss Wood received her master of science degree in physical therapy at Northwestern in 1949.

Miss Beard and Miss Dean will open an outpatient physical therapy treatment center under the supervision of Dr. Emil D. W. Hauser after September 1.

Chapter News

Nancy Schmann, Physical Therapy Consultant, Division of Medical Services, State Dept. of Public Assistance, Charleston, West Virginia is convalescing after an automobile accident which occurred on July 23rd. She received a broken nose, broken jaw, multiple lacerations of the face requiring approximately 130 stitches. She will undergo facial plastic surgery in the near future.

Polio Emergency Continues

The national total of 3,110 polio cases reported by the U.S. Public Health Service for the week ended August 16 was 17 percent larger than the number a week earlier, and represented an increase of more than three-fourths over the figure for the same week of 1951. While the latest week's total was 85 percent above the average level for the comparable week of the past 5 years, it fell 9 percent short of the number in the corresponding week of 1949—the largest weekly figure on record.

During the current calendar year to date, 16,477 cases have been reported. This total is nearly two-thirds larger than the corresponding cumulative totals for both 1951 and the average of the five-year period 1947-1951. During the first 33 weeks of 1949, however, 809 more cases were reported than during the same portion of 1952. Since the start of the 1952 calendar year, the highest case rates per 100,000 population have been reported in the following states (United States rate is 10.9):

State	*Case Rate per 100,000 Population*
Nebraska	40.9
Iowa	37.5
Texas	36.2
New Mexico	28.6
Minnesota	20.8
Louisiana	20.5
Kansas	19.9
Mississippi	19.3
Oklahoma	18.8
Kentucky	18.3

State Examination to Be Held

Examinations for the Practice of Physical Therapy in the State of North Carolina will be held on October 24, 1952 in Durham, N. C. Applications are to be made to the Secretary of the Examining Committee, Maria Kennedy, 123 West Seventh, Charlotte, N. C.

Coming Meetings

The National Association for Music Therapy will hold its third annual meeting in Topeka, Kansas, October 30, 31, and November 1, 1952 in the Hotel Kansan. Applications for active, associate or student membership may be made to Mrs. H. Dierks, 5050 Oak Street, Kansas City 2, Missouri. Members of the medical or musical professions who are not members may attend meetings by paying a registration fee of $5.00.

The annual conference of the American Association of Medical Record Librarians is to be held October 13-17, 1952, at the Shoreham Hotel, Washington, D. C.

General News

Army Recall for Physical Therapists

The Department of the Army has announced that 125 Women's Medical Specialist Corps Company Grade Reserve officers will be recalled to active military service during the months of February, March and April 1953. This total includes thirty-one physical therapists, to be called from six Army Areas in accordance with the following quotas:

First Army	8	Fourth Army	2
Second Army	5	Fifth Army	8
Third Army	2	Sixth Army	6

Selection for recall of these officers will follow, in general, the same procedural pattern as that used in implementing the "Doctor Draft Law." Through civilian national, state and local advisory committees, the cooperation of the appropriate professional organizations will be enlisted in the selection of individual officers to insure equitable consideration of both the military and civilian needs. The criteria of deferment will be the same as those used in the previous recall program. Those who are pursuing a full time course of instruction on a university level will be deferred until completion of the current academic year. Others who will be deferred are Reserve officers who hold key administrative or teaching positions in civilian training programs or those whose entry on active duty might jeopardize the health of the community in which they are currently employed.

The quotas for each of the Armies as listed will be met by selection from groups in accordance with the following priorities:

I. Volunteers—All volunteers will be credited to Army Area quotas.

II. Volunteers or Inactive Reservists who have received active duty training pay since June 23, 1950.

III. Members of the Volunteer Reserve.

IV. Members of Troop Program Units of the Organized Reserves.

Selection within these groups will be made in the following order of priority:

(1) Unmarried officers with no dependents.
(2) Unmarried officers with dependents.
(3) Married officers with no dependents.
(4) Married officers with dependents.

The maximum age limitation is 50 years of age and no person will be recalled to duty without her consent if she has already served involuntarily in active military service subsequent to June 25, 1950.

Category commitments signed by officers in this recall program will be as follows:

1. Volunteers—Category II—24 months; or Category III—36 months.

2. Non-Volunteers—Category IV—17 months for those persons who served on active duty for one year or more between December 7, 1941 and September 2, 1945; or 24 months for those without the service referred to above.

Selected officers found physically qualified will be ordered to active duty not earlier than 120 days from the date of physical examination unless this mandatory number of days is waived by the individual concerned.

Reorganization of Nurses

In June at their biennial convention the professional nurses of six national nursing organizations voted to combine in two organizations. Now the American Nurses' Association becomes the organization exclusively for professional nurses and nursing students.

The National League for Nursing with a Division of Nursing Services and a Division of Nursing Education was organized to help meet the nursing needs of the people by furthering the development and improvement of nursing education and of organized nursing services in communities.

The National League for Nursing includes both individuals and agencies. Among the individuals who already belong to NLN or who are eligible to join are: registered professional nurses in all fields and positions of nursing; members of boards and committees associated with nursing services and educational units; members of allied professional groups such as physicians and non-nurse educators who are associated with educational institutions providing nursing education; and other citizens interested in seeing that there are sound standards for organized nursing services and education.

A National League for Nursing service unit of particular interest to physical therapists is the Advisory Nursing Service for Poliomyelitis and Orthopedics (formerly JONAS) to which Louise Suchomel has been named Service Consultant.

Alfred Sasser, Jr. Appointed Employment Consultant

Mr. Alfred Sasser, Jr. has been appointed as consultant in employment for the National Society for Crippled Children and Adults. Mr. Sasser, who has attracted wide attention for his work in the pioneering program of rehabilitation at the State Hospital for Epileptics, Parsons, Kansas, succeeds Mr. Edward L. Morris, who recently became executive director of Chicago's Portal House. He takes over his new duties September 1, assuming also at that time active supervision of the Easter Seal Society's National Personnel Registry and Employment Service.

Manuals on Home Care for Multiple Sclerosis Patients

"You still have a lot more ability than you have disability," states Dr. Edward E. Gordon, Medical Director of the Institute for Crippled and Disabled, and author of four manuals written for multiple sclerosis patients and just published by the National Multiple Sclerosis Society. The four manuals will be distributed through physicians to: (1) independently ambulatory patients; (2) patients ambulatory with aids; (3) wheel chair patients and (4) more confined patients. First of their kind ever printed, the manuals represent a concrete forward step in the goal of the Society to promote management of the widespread disabilities of multiple sclerosis. Contributing towards the printing of the manuals was the Metropolitan Life Insurance Company in recognition of the fact that this chronic disease is an important public health problem.

The patient manuals, written for patients in varying stages of disabilities, aim to promote a home program of rehabilitation, physical therapy, and recreation for patients under the supervision of the physician. The need for a rehabilitation program in the home is urgent in most cases because of the lack of adequate rehabilitation centers for chronic diseases in this country. Even where a patient may have access to outside rehabilitation facilities, a home program provides an important supplement.

Written in simple nontechnical terms and amplified by diagrams and illustrations, the manuals describe exercises which can be performed in the home to strengthen muscles, loosen tight muscles, improve coordination, prevent atrophy from disuse, and increase motor efficiency. Although all useful exercises are described, Dr. Gordon recommends that the patient's physician should prescribe the type and duration of the exercises. Pulleys, weights, parallel bars, and other apparatus are recommended for use in the program.

An important section of each manual is devoted to suggestions on how to efficiently perform the many functions that are essential to daily living, and includes technics of dressing, opening doors, turning faucets, and of others. A form is provided for patients to score themselves by checking at regular intervals those functions they can perform by themselves; the degree of improvement is thus noted.

A section on occupational therapy points out that hobbies not only make for interesting living but improve motor efficiency. Hobbies are listed in the manual along with what they may accomplish in the way of improving motor efficiency. Sources of interesting hobbies are included.

One section of the manual is devoted to helpful suggestions, useful gadgets and devices designed to promote enjoyable and efficient living. These range from the advice that "Anger, anxiety, and anguish are the enemies of man" to simple recommendations on how to arrange a closet or hold a pencil more easily.

The patient manuals will be sent without charge to all multiple sclerosis patients at the request of a physician who will specify the appropriate manual needed for the patient. Inquiries should be addressed to: National Multiple Sclerosis Society, 270 Park Avenue, New York City.

Pamphlet on Health Protection Available

Your Neighbor's Health is Your Business, a pamphlet sponsored by the National Health Council, the coordinating agency of the Nation's major voluntary and governmental health agencies, emphasizes the inadequacy of health departments in most cities and counties of the United States and offers a "yardstick" for measuring the efficiency of a local health department.

By outlining what a "good health department" does, this booklet encourages citizens to organize to meet the standards necessary for health protection, and shows them how to work through clubs

and newspapers for a full quota of physicans, nurses and auxiliary personnel to meet the health problems of their community.

That some progress has been made is indicated by the fact that ten years ago there were no full time health departments for two-thirds of the population, while today nearly three-fourths of the population has some protection. Credit for much of this is given to the voluntary health agencies and other citizen groups. The need for improving existing health services, while working for the establishment of health departments in communities still unprotected, is stressed.

The pamphlet is available at cost through the Public Affairs Committee at 22 East 38th Street, New York City.

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A complete description of what the physical therapist does, where he works and how he functions in the professional field as well as what type of individual he is. (Single copies are free to counsellors, libraries and chapters; additional single copies 50c each, 10-25 copies 35c each, 25 or more copies 25c each.)

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Abstracts

Present Status of the Use of Ultrasonic Energy in Physical Medicine

Frank H. Krusen, M.D., Rochester, Minn. In SOUTHERN MEDICAL JOURNAL, 45:1:55, January 1952.

Applications of ultrasonic energy can produce sharply localized heating of living tissues and can cause selective heating of bone cortex and bone marrow as does no other source of energy employed so far for medical diathermy.

If ultrasonic diathermy is employed clinically, a wide margin of safety with regard to dosage is necessary because of the unexpected variations which frequently arise.

Ultrasonic energy of the intensities and frequencies employed in physical medicine probably has no effect on conduction in peripheral nerves other than the effects produced by the rise of temperature.

In normal tissues ultrasonic energy can produce markedly destructive reactions. These destructive changes can occur at the point of application of the ultrasonic energy or throughout the pathway of the radiation through the tissues or at the point of exit. The degree of destruction varies according to the type and density of the tissues and according to the presence or absence of fascial barriers. The reactions obtained in various animals in the study made by Krusen were similar and varied not with the animal but with the intensity and duration of the treatment.

In nearly all of Krusen's studies, maximal doses were employed. However, except in one study, the doses did not exceed even half those which are available on one of the machines commonly employed by physicians. The maximal dosage used by Krusen (except in a few instances) was 25 watts for thirty minutes. The machine is capable of providing 60 watts for indefinite periods of time. It is evident, therefore, that such a machine when employed at maximal dosages can produce severe damage of many types of tissue. The spinal cord, peripheral nerves, testes, growing bones, and hair follicles appear to be particularly susceptible to damage.

The danger of intensification of dosage by reflection from fascial barriers or gas pockets must always be considered. The effects of ultrasonic energy on living tissues appear to be chiefly those of heating.

From the therapeutic standpoint, it must be remembered that many potent therapeutic agents are dangerous in overdoses. When no anesthesia is employed, pain will serve as a danger signal and prevent overheating of tissues. In proper dosage, ultrasonic diathermy may well produce valuable selective heating effects not previously obtainable. The possibility that ultrasound may produce effects on the tissues, other than thermal ones, is recognized. Nevertheless the effects obviously are chiefly those of heating and there is no need for ultrasound to produce other mysterious effects for it to be of value in therapy. It must be realized that many thousands of patients have been treated with ultrasonic diathermy in Europe without apparent harmful effects. It is believed, however, that physicians should await further cautious study of ultrasonic therapy before employing it indiscriminately in practice.

Some Problems of Bronchial Asthma

H. Herxheimer, M.D. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, 15:6:129, June 1952.

Herxheimer questions whether breathing exercises, ordered so generally and carried out for a long time, have improved the results in the treatment of asthma. As is well known, many methods of treatment relieve the disorder in a high percentage of cases; the common explanation of this fact is that psychological factors support their effect. It may be taken for granted that certain psychological factors will accompany breathing exercises, as they do other methods, and perhaps even more so; the patient is actively doing something to treat his disease, and the confidence of his physician, of the physical therapist and of himself are strong factors of great value.

It should be determined also whether or not breathing exercises can facilitate the passage of air into and out of the lungs in spite of given obstacles. The air is transported by the movement of the respiratory and diaphragmatic muscles, the elasticity of the lungs and the weight of the thorax. The muscles may be subject to the influence of exercise, but the question is: can they be trained to overcome obstruction and, if so, in what circumstances?

In the experience of Herxheimer, patients with mild or moderate attacks of asthma and long free intervals have a large vital capacity, often larger than the expected value. Naturally, such patients exert themselves greatly during their attacks and practice inspiration and expiration with maximal effort. It is unlikely that the efficiency of their respiratory muscles could be improved still further by breathing exercises. It may be possible to teach such patients not to be frightened by their attacks, and to use their abdominal muscles in a determined effort to prevent overinflation, but it is doubtful that such an attempt would be of value in an acute and violent attack.

In chronic asthma the position may be different. Here we see patients with mild bronchial obstruction, whose chests seem to be more inflated than is warranted by the degree of obstruction. If these patients are treated with drugs which relieve obstruction, the inflation seldom recedes at once. The vital capacity improves only by a few hundred millilitres after each treatment, and it takes several days or more to reach a normal state of ventilation. Wyss and Schmid (1951) have measured the bronchial resistance in asthmatic cases and found that in some cases it was much smaller than was expected. They conclude that in these cases the breathing difficulty must have been caused by an "increased tonus" of the respiratory muscles and the diaphragm. It may be assumed that in such cases breathing exercises can be of great value, if they lead to a general relaxation of the musculature and thus to a deflation of the thorax.

Physical Treatment in Asthma

James L. Livingstone, M.D. In THE BRITISH JOURNAL OF MEDICINE, 15:6:136, June 1952.

In asthma as in other conditions, the earlier treatment is started the better is the outlook. Unfortunately, the majority of cases are treated symptomatically by drugs for months or years before any curative treatment is begun. It does not take many months of mild asthma, or many severe paroxysms, to produce a "conditioned reflex" whereby minor stimuli may provoke an attack: besides the nervous tension and thoracic deformity, the patient loses confidence and develops a dependence

on others, particularly his physician, to help him by an injection, an inhaler or some tablet.

It is because of this dependence of the patient that the physical therapist can play such an important part in treatment; he should be able to give the patient the *time* which is essential for him to acquire confidence, quite apart from giving the physical treatment prescribed. The physical therapist who has the right personality, coupled with enthusiasm and faith in his ability to help the patient, can get results immeasurably better than can one who may have a detailed knowledge of the technic but is without these attributes. As in other disorders of function, the value of suggestion is considerable and should be used. The physical therapist tells the patient that he may (and indeed should) be able to abort a minor attack of wheezing by breathing exercises alone, without recourse to drugs: he is told to report the first occasion when he is able to do this. This suggestion might be described as "quackery," but in fact some 50 percent of asthmatic patients do report control of the wheezing within a few weeks. This teaches self-reliance and gives them confidence that there is something they can do for themselves, which is very important. In the training of a physical therapist this principle of "mind over matter" in the treatment of asthma should be stressed.

There is considerable variation in the type of exercises and methods used by different workers, some preferring "assisted exercises," "vibration" and so forth, but the basic principles are the following:

(1) To teach the patient to deflate the lungs, to relax the diaphragm, and to breathe with the abdominal and lower thoracic muscles instead of the upper intercostal and accessory muscles, which act on the upper thorax.

(2) To increase the mobility of the chest wall, to correct kyphosis, and to prevent further thoracic deformity by teaching relaxation of the over-acting muscles of inspiration.

(3) To give the patient confidence that he can do something for himself to relieve, at any rate, minor attacks, by relaxing the diaphragm and other muscles, and by doing expiratory exercises which appear to loosen the secretion in the bronchi and to relax broncho-spasm.

Over the past twenty years the majority of asthmatic patients under Livingstone's care have been given breathing exercises, and at least 75 percent have really tried to learn them. Of these at least 60 percent have, in fact, acquired "controlled" breathing, and most have stated that they regard proper breathing as being of great value. Perhaps 10 percent of those who have acquired breathing control have failed to improve materially.

It is the opinion of Livingstone that an asthmatic patient is not being given the maximum of available benefit if physical treatment is omitted.

Sex Differences in Registry Examination Performance of Physical Therapists

Clay d'A. Gerken, Ph.D., Iowa City, Iowa. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:345, June 1952.

Theorizing about sex differences always present intriguing problems. This is particularly true in the occupational world, and especially so in a field like physical therapy, in which workers of both sexes receive comparable training and perform essentially the same sorts of tasks on the job. There undoubtedly would be some "academic" value in establishment of real and significant sex differences in work performance if this were possible. Probably such information would have very real practical values as well, since training programs might be designed to exploit sex differences or different sorts of tasks could be assigned depending upon the sex of the worker.

Until adequate criteria become available, or until they are developed by methods requiring the expenditure of considerably more time and effort than it probably would be wise to spend, the scores earned on the Registry examination by applicants for registration with the ARPT may serve as one partial measure of success. This achievement examination has the advantage of being a highly reliable measure, but has one disadvantage in that it measures verbal knowledge of the field only.

From the study of these examinations it has been demonstrated that men and women therapists do not differ significantly with reference to the professional knowledge they possess if they are tested at a time when the maximum number of variables which could make for differences is controlled. Of course, it possibly may be shown that in their performance on the job, evaluated after they have had experience, either sex may be superior to the other. If this is demonstrated, the subsequent superiority must relate to factors which operate after academic training is completed or to factors which are unrelated to academic training.

It may well be that so-called "personality" factors—difficult to describe or isolate, often existing almost solely in the eyes of the beholder, and usually virtually impossible to quantify or classify—may be of considerable importance to effective work in physical therapy. On purely theoretical grounds, however, it is to be expected that sex differences of this sort may not be clearly definable. Psychological research has demonstrated that for many variables differences among people in each sex are so much greater than differences between sexes that sound conclusions with reference to sex differences are difficult to establish.

The task of demonstrating superiority of one sex in comparison with the other, at whatever point in time after training has been completed, will be an extremely difficult one. The research will require careful definition of conditions to be investigated, adequate control of variables, highly reliable objective criteria, the elimination of sources of bias, and ingenuity of a high order.

Advantages and Limitations of Ultrasonics in Medicine

Herman P. Schwan, Ph.D., and Edwin L. Carstensen, M.S., Philadelphia. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 149:2:121, May 10, 1952.

High frequency sound has recently been advocated for use in physical therapy. Early clinical reports suggest that ultrasonic therapy is indicated in cases in which treatment with heat is required. Systematic evaluation of the application of ultrasound in medicine has only begun. It is certain that this radiation produces heat in the body tissues; however, whether purely mechanical or other nonthermal effects play a significant role in treatment has not been determined. This article is restricted to the biophysical problem of the production of heat by ultrasound in tissue and the consequences of the manner in which the transformation of sound into heat takes place. It further compares this new technic with other methods of producing heat in tissue.

The fact that at present the role of nonthermal effects of high frequency sound in medicine has not been evaluated provides an incentive for research but is actually a deterrent to the immediate clinical application of the technic. The transfer of sound energy into heat can be due either to volume heating or structural heating; the absorption of sound in the body by the protein molecules is an example of the first; the localized heating of muscle-bone interfaces is an example of the second type.

There are both limitations and advantages in the use of the heating properties of ultrasound. Because of the coupling problem, the application of sound to tissue requires constant attention by the physical therapist. The localized heating of tissue interfaces may constitute an actual hazard unless used properly. On the other hand, ultrasound offers simultaneously high depth of penetration and good beaming. This combined with high absorption in muscle as compared with fat makes ultrasound especially suitable for localized deep heating.

Prescribed Occupational Therapy

Nila Kirkpatrick Covalt, M.D., Rocky Hill, Conn. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:333, June 1952.

This is a discussion of the prescription of occupational therapy from various approaches: that of the physician, that of the occupational therapist and that of the actual terminology of a prescription.

The Baruch Committee's definition of physical medicine placed occupational therapists on an equal with physical therapists. However, the national organization (A.O.T.A.) does not want to affiliate with physical medicine exclusively, which would subject them to (and have) medical direction from physicians who have training in their field. The national organization prefers to control their national registry rather than affiliate in any way with the American Medical Association. The implication is that organized occupational therapy does not want good medical supervision, but prefers its therapists either to practice medicine or be supervised or accountable—as Doctor Snow said, "to one of the women's auxiliary lay committees." Occupational therapists are defeating themselves and delaying progress as long as they are unwilling to align themselves with the medical specialty where physicians are also formally trained in the therapeutic use of this field.

In conclusion, Doctor Covalt makes two recommendations:

(1) That the executive committee of the American Congress of Physical Medicine appoint a committee to meet and adopt standard terminology for the prescribing of occupational therapy. (An outline is presented which could be a basis for an official terminology.)

(2) That official recommendation be made to the American Occupational Therapy Association by the American Congress of Physical Medicine as to suggested changes in policy that this medical association feels would strengthen the occupational therapy profession, and officially make those therapists a part of the field of physical medicine and rehabilitation as officially defined by the Baruch Committee on Physical Medicine.

The Electromyogram in Rheumatoid Arthritis

Emily E. Mueller, M.S., and Sedgwick Mead, M.D. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:2:67, April 1952.

In the abundant literature on rheumatoid arthritis, many references have been made to the presence of involuntary activity in the muscles of arthritic patients. Trommer states that spasm is the underlying cause of pain and deformities. Schlesinger also attributes certain symptoms of arthritis to muscle spasm. In an electromyographic study, Morrison and associates found the muscles related to the involved joints to be in an inconstant state of tension. Kabat considers spasm to be one of the factors limiting motion even long after the joint inflammation has subsided.

So-called spasm is most marked in the flexors (of the knee joint, for example). Yet the most intense atrophy occurs in the extensors. It is hard to reconcile this paradox with the statement of Fischer that arthritic muscles, or parts of them, are not completely at rest but rather are in a mild state of tonic contracture which enhances atrophy. Harding also suggested that the atrophy, associated with an increased oxygen consumption, is caused by increased activity (abnormal discharge of impulses to the muscles).

The purpose of this study was to determine the electromyographic changes in this disease and to test the theory of muscle spasm as a cause of muscle atrophy.

Mueller and Sedgwick examined twenty-five patients with undoubted rheumatoid arthritis in order to determine their characteristic electromyographic patterns.

In no case could they detect unequivocal evidence of muscle spasm or any other type of spontaneous electrical activity.

Some of the records showed tremorous activity and all revealed evidence of weak muscle contractions during voluntary effort.

The results of this study are compatible with the theory that muscle atrophy and weakness in arthritis result from a powerful central inhibitory state in the spinal cord, mediated in some way by painful impulses from the local lesion.

The Use of Cortisone in the Management of the Shoulder-Hand Syndrome: A Case Report

Nathan Sussman, M.D., Harrisburg, Pa. In ARCHIVES OF PHYSICAL MEDICINE, 33:5:289, May 1952.

Up to the present time the shoulder-hand syndrome has been treated primarily with various physical therapy modalities, resulting in some temporary relief with little or no alteration in the course of the pathological physiology. Roentgen therapy also proved inadequate, while interruption of the sympathetic nerve pathways has been reported as giving good results. Recently several have noted the use of a local block, by infiltrating the stellate ganglion with procaine hydrochloride, as a successful therapeutic approach. It is their belief that this procedure interrupts the cyclical phenomenon set up through the internuncial pool of active stimuli in the cord by the primary etiological condition; they found that the majority of cases obtained relief of pain, muscle spasm, and disability.

This paper presents a case that has been refractory to physical therapy, nerve block, roentgen therapy, and stellate ganglion block, but exhibited striking improvement with cortisone.

Although the mechanism by which cortisone acts still is open to conjecture, its therapeutic effectiveness has been demonstrated in an ever-increasing spectrum of disease entities. Thus, as is illustrated by the case reported in this paper, this steroid is recommended in the management of the shoulder-hand syndrome for the following reasons: (1) Its analgesic effect. (2) Resultant increased sense of well-being. (3) Increased amenability to adjunctive physical therapy. (4) Progressive reversal of the existing pathological state.

Control of Colds in Industry

A. K. Hill. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE. 15:2: 37, February 1952.

A virus is now accepted as the essential cause of what is called the common cold; but little is yet known of the properties of the virus itself, or of the factors which are related to human resistance or susceptibility to infection by the virus.

It is Hill's opinion that the most hopeful method of controlling the common cold is by general hygienic measures, supplemented in some cases by physical or chemical technics. There are, however, several prophylactic measures which have been used extensively, but with what success is still being argued.

Special measures include ultraviolet irradiation, vaccines and vitamins. Exposure to ultraviolet light in short repeated courses or regularly during the winter months has many advocates and is much used in industry. Of four methods of prophylaxis tried, this was the only one which reduced both the severity and the number of colds in a large factory. Such exposure may be of value in raising the level of general physical fitness, but the reports on its value in preventing colds are very conflicting. The number of victims of colds who are suntanned and physically fit after a recent holiday has greatly reduced the faith which Hill did have in the prophylactic value of ultraviolet light. It is his impression that no purely prophylactic measure is of proved value when applied generally to large numbers of persons, but that in selected cases, one or the other method may be successful.

Mechanism of Absorption of Ultrasonic Energy in Blood

George Morris Piersol, M.D., Herman P. Schwan, Ph.D., Robert B. Pennell, Ph.D., and Edwin L. Carstensen, M.S. In ARCHIVES OF PHYSICAL MEDICINE. 33:6:327, June 1952.

The investigation of blood and its components has shown that the presence of protein molecules is sufficient to account not only for the entire absorption in blood but also for a significant portion of the absorption in many of the solid tissues. Therefore, it would appear wise, in studying the effects of intense sound on tissue, to give particular attention to the proteins. Wu and Liu in 1931 and Chambers and Flosdorf in 1936 reported coagulation of egg albumen by ultrasonic and sonic vibrations. In both cases this phenomenon was associated with cavitation. It is apparent from the present work, however, that even in the absence of cavitation strong, dissipative forces are exerted on the protein molecules. The mechanisms of the action of ultrasound with and without cavitation should be quite different.

The importance of the proteins in the absorption processes should by no means rule out consideration of structural absorption in the solid tissues. Nelson and others have shown that excess heating does occur at macroscopic interfaces. This investigation, however, has shown that interfaces of the size of the red cell membrane are too small to produce a significant reflection or scattering of waves of the order of one millimeter in length. Therefore, specific effects on cell membranes are not to be expected. More work will be required to determine the precise conditions under which structural absorption becomes important.

Ineffectiveness of Ultraviolet Hemo-Irradiation in Distemper

Khalil G. Wakim, M.D., Frank H. Krusen, M.D., Carl Schlotthauer, D.V.M., and Fordyce R. Heilman, M.D., Rochester, Minn. In ARCHIVES OF PHYSICAL MEDICINE. 33:6:339, June 1952.

The literature on ultraviolet irradiation of blood suggests the effectiveness of such therapy in the treatment not only of bacterial but also of virus infections. There is sufficient evidence in the literature, since the work of Carre, to show that distemper in dogs is caused by a filtrable virus.

This study was undertaken to determine whether the procedure of hemo-irradiation really has a place in therapy. Three important factors were kept strictly constant in this study: (1) the amount of blood withdrawn and irradiated; (2) the time of exposure to ultraviolet energy; (3) the intensity of ultraviolet radiation.

Thirty dogs stricken with distemper were used in this study; 15 were kept as controls and 15 were irradiated. They were kept in the kennels under identical conditions and given the same food and care. From past experience it has been found that either recovery or death of the animal stricken with distemper occurs usually within fifteen days from the start of illness.

At the end of the fifteen days, 11 of the 15 control dogs remained alive, while of the 15 dogs which were given ultraviolet irradiation of blood, only 8 were still alive on the fifteenth day after treatment.

From the data obtained, it can be stated that ultraviolet irradiation of the blood according to the standard procedure is ineffective in the therapy of distemper.

Accelerated Rehabilitation in Rheumatic Fever

Albert J. Simon, M.D., Irving Mack, M.D., and Philip Rosenblum, M.D., Chicago. In AMERICAN JOURNAL OF DISEASES OF CHILDREN, 83:4:454, April 1952.

Herrick House is a year-round convalescent institution for the care and rehabilitation of children recuperating from rheumatic fever. The program at Herrick House differs from that of other institutions in that mobilization is begun as soon as there is clinical and laboratory evidence that the rheumatic process is quiescent. The classic method, as opposed to this, is one of long bed rest, wheelchair, and activity-restricted convalescence.

When it is clinically noted, from observation, examination, and laboratory data that the rheumatic process is quiescent, mobilization is begun. The physical activity of the child is increased slowly, with the result that over a period varying from two to five months, depending upon the rapidity with which he

reaches maximum tolerance, the child goes from bed rest with bathroom privileges (called Stage 0) to full activity (Stage 4), which may include rowing, baseball, hikes, swimming, dancing, ice skating, and sledding. Children with severer heart damage and diminished cardiac reserve progress more slowly. Between Stage 0 and Stage 4 there are intermediate stages of graded activity.

The child is advanced through successive stages of physical activity as his condition warrants. Severe heart damage will limit the activity of a few children. These children will reach a plateau of tolerance at the mildly restricted Stage 3 level, and sometimes even at Stage 2. Each patient is given individual attention, and activity tolerance is gauged by an estimate of the child's exercise tolerance correlated with the amount of heart damage. For many patients without evidence of residual heart damage the physician may increase activity by elevating the patient from Stage 1 to 3, or Stage 2 to 4. Thus, the program consists in graded physical activity combined with careful medical observation.

Radiculitis of the Cervical Spine: Simulation of Coronary Conditions and Physical Treatment

H. I. Weiser, M.D. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, 15:5:105, May 1952.

If all the clinical examinations, including several exercise tests and electrocardiography fail to show any signs of heart disease, it is advisable to consider the possibility of extracardiac causes for sternal or praecordial pains.

Pressure on a nerve root in one of the intervertebral foramina of the lower cervical or upper thoracic spine causes a pain syndrome which may be of the same intensity, quality, and distribution as a genuine coronary pain.

The violent attacks of pain due to radiculitis occur after the subjection of the upper spine to excessive loads while the patient is standing, sitting or sleeping in unfavorable positions. The characteristic pains may be reproduced by hyperextension or hyperflexion of the cervical vertebrae or by firm pressure on a vertebra.

The most essential therapeutic measure is correction of the posture. Attention should be paid to proper carriage while walking, standing, sitting or lying. It is equally necessary that a suitable posture should be assumed while working. Joints should only be subjected to loading in intermediate positions.

Traction of the head relieves the neural roots. Mobility of the vertebral joints is improved by frequent minor manipulations of the spine. Mild heat and mild stroking massage relieve the spastic neck muscles. Carefully applied exercise treatment and special breathing exercises are an essential adjunct to this therapy.

In most cases the conservative measures described in this paper will achieve considerable relief of and temporary freedom from pain.

Ethyl Chloride Spray for Painful Muscle Spasm

Janet Travell, M.D., New York. In ARCHIVES OF PHYSICAL MEDICINE, 33:5:291, May 1952.

Ethyl chloride spray at times is extraordinarily effective not only in acute myofascial pain but also in acute visceral pain. Therefore, it cannot be inferred a priori that relief of pain by this agent precludes a diagnosis of remote disease, such as a fresh myocardial infarct, an oesophageal hiatus hernia or a twisted ovarian cyst. Longstanding pain syndromes do not respond to the spray as often as do acute ones. A plea is made, therefore, for an early trial with this relatively safe remedy.

Effective application of ethyl chloride spray for relief of painful muscle spasm is not the simple procedure that it appears. Successful therapy with this agent depends on (1) a recognition of the pain reference patterns of the skeletal muscles, (2) knowledge of the anatomy and function of individual muscles and groups of muscles, (3) skill in executing a precise technic and (4) ability to get the patient to relax adequately during the spraying and to cooperate in carrying out active motion at the time of treatment and subsequently.

The mechanism of action of ethyl chloride spray in relieving painful muscle spasm is discussed in relation to methods of its application. This agent probably falls in the category of counter-irritants. A better understanding of the mechanisms involved should remove this important weapon against pain from the realm of empiricism and should enlarge its sphere of usefulness.

New Developments in Amputee Rehabilitation

Atha Thomas, M.D., Denver, Colo. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:357, June 1952.

Ironical though it is, most advances in amputation surgery and in the development of prosthetic devices in modern times have taken place during and immediately following a major war. It has been only in the recent years that the importance of training the amputee in the use of his prosthesis has been appreciated. With the lower extremity amputation, not only are active exercises necessary but careful instruction and persistent practice in proper gait and posture are essential. With the upper extremity prosthesis, the amputee requires thorough instruction, long practice and perseverance if he is to master its use.

Some of the more important devices which have been developed and made available to the limb industry are the suction socket above-knee prosthesis, better artificial arms, and new terminal devices. The latter are so-called because they attach to the end of the prosthesis and substitute for the hand. The Army Prosthetic Research Laboratory has developed a new hook and a new hand, which appear to have certain definite advantages over the conventional devices now in common use.

One of the most significant developments that has taken place in recent years is the commendable change in attitude and philosophy evidenced by members of the artificial limb industry. They have developed a truly professional attitude toward their work and in their relationship with the physician and the amputee, placing more emphasis on rendering a service than selling a product.

Pathogenetic Concepts of "Fibrositis": Fibropathic Syndromes

Irvin Neufeld, M.D., New York, N. Y. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:363, June 1952.

"Fibrositis" certainly is not only a confused but also a confusing term. Therefore, it is preferable to use the term "fibropathic syndromes" to indicate the different nonarthritic rheumatic symptom-complexes of different etiology, pathology, pathogenesis, and clinical course.

This brief summary of the more thoroughly elaborated pathogenetic concepts of fibropathic syndromes is intended to (1) demonstrate that there is already adequate workable knowledge of the biochemical, biophysical, neurophysiological, and bioelectrical aspects of the fibropathic syndromes available to show that attempts at solving the problem from a histopathological aspect are a priori doomed to failure; and (2) to stimulate more research in these lines in order to achieve a scientifically acceptable comprehension of this obscure but important ailment.

The four chief symptoms of "fibrositis" ("tetralogy of fibropathic syndromes"), namely: pain, tenderness, postinertial dyskinesia (usually but improperly called "jelling" or "stiffness"), and easy muscular fatigability, may more satisfactorily be approached if one is familiar with the main principles of the pathomechanism of these mainly functional syndromes. Certain peculiar features, such as nonarthritic joint pain (arthralgia), non-segmental reflectory phenomena (often labelled as "hysterical"), weather-sensitivity, responses to physical and other therapeutic procedures, psychogenic rheumatism, psychogenic diagnosis, rheumatogenic psyche, stress-conditioned rheumatic symptoms, post-traumatic and traumatogenic fibropathic conditions are discussed briefly on the basis of presently available scientific data.

A strong plea for further research along the mentioned lines, and against rejection of patient's justified but not fully understood complaints, and against unsound application of sound psychosomatic principles have been stressed in this article.

Physical Medicine and Rehabilitation for the Handicapped Worker Over Forty: A Retrospect

Frank H. Krusen, M.D. In ARCHIVES OF PHYSICAL MEDICINE, 33:2:93, February 1952.

The purpose of this paper is to look back on the history and weak beginnings of physical medicine and rehabilitation and to show that this new special field of medical endeavor offers the solution of the problems of the rehabilitation of the handicapped worker over forty and indicates that we should make every effort, in the future, to increase the number of centers devoted to this work. Past experience has taught us that in order to achieve prompt and adequate rehabilitation of the disabled person, in addition to appropriate medical and surgical care, we must provide suitable physical rehabilitation, satisfactory psychosocial adjustment, vocational advisement, and vocational placement.

Looking back on the development of physical medicine and rehabilitation, we can see that this new combined medical field offers the solution for proper rehabilitation of the older handicapped worker; therefore, it is of the greatest importance that centers of physical medicine and rehabilitation be organized in various communities throughout the nation.

Precision of Elbow Flexion Ergography under Varying Degrees of Muscular Fatigue

H. Harrison Clarke, Ed.D., Springfield, Mass. In ARCHIVES OF PHYSICAL MEDICINE, 33:5:279, May 1952.

This research was undertaken to determine the precision with which ergographic testing of the elbow flexion muscles can be accomplished under the conditions described. The subjects were 31 male students at Springfield College, who were majoring in physical education and active in athletics. In terms of body weight for height, somatotype, and basic strength, they were superior to college students in general.

The Kelso ergograph was the instrument utilized in muscular fatigue testing, and the following results were obtained:

1. A high degree of precision was obtained under conditions of mild to moderate muscular fatigue. This result was true whether the test bouts were administered ten minutes or one week apart, provided the ergograph weight load remained the same.

2. Any length lever arm may be used with consistent results. However, under conditions of mild to moderate muscular fatigue, they must not be interchanged if a comparison of total work done is to be made.

3. The effect of practice upon the results of ergographic testing was slight when muscular fatigue did not reach exhaustion states.

4. Precision in ergographic testing was maintained when weight loads were increased, provided thirty minute rest periods between test bouts were allowed, and the fatigue induced fell short of exhaustion.

5. The precision of ergographic testing was reduced when exhaustion states were reached, with a thirty-minute rest period between bouts. The objectivity coefficient of 0.78, however, is sufficiently high to render encouragement to the belief that precision procedures might eventually be achieved.

The Neuropsychiatric Aspects of Rehabilitation

Franklin G. Ebaugh, M.D., Denver, Colo. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:348, June 1952.

Psychiatrists and specialists in physical medicine are working on common ground, as far as objectives, and even to some extent methods, are concerned. In psychiatry the rehabilitation of the unhappy, inept, discouraged and incapacitated psychotic or psychoneurotic patient is basically the chief concern; in physical medicine the chief concern is the rehabilitation of the physically crippled.

One of the great problems faced in rehabilitation is the maintenance of a cooperative relationship between patient and physician, patient and therapist, and others, over long periods of time. Most of the psychological problems in rehabilitation of the physically handicapped are readily understandable and can best be handled by the physicians and therapists in immediate charge of the patient. This is not intended to imply that there are not patients who should receive specialized psychiatric attention, but rather that a good working relationship between the patient and his physician and therapist is the most satisfactory answer in most cases. For this reason it is frequently preferable for the psychiatrist to work through the physicians and physical therapists and social workers on the service.

There are some patients, of course, whose psychological problems are so deep-seated and disabling that they will require the direct services of the psychiatrist. When this is the case it is of greatest importance to have the referral properly made, for a poor referral may destroy completely the chances of giving the patient adequate psychiatric care.

Working with the physical medicine specialist in a common sense and straightforward manner, psychiatrists can contribute concretely toward helping the chronically disabled to a more complete and successful rehabilitation.

Rehabilitation Techniques with Braces and Crutches: V—Travel Techniques

Morton Hoberman, M.D., and Erbert F. Cicenia. In AMERICAN JOURNAL OF PHYSICAL MEDICINE, 31:2: 82, April 1952.

In order to be truly independent, every disabled person must master travel technics covering every variety of transportation facility which may be available to him. The degree of emphasis to be placed on traveling activities, especially bus and train steps, in the rehabilitation plan for severely disabled persons is an oft debated problem.

Traveling activities, which are a very important phase of daily living, should be begun as soon as the individual has acquired the necessary strength, balance, coordination, and mastery of basic skills which facilitate the handling of his body efficiently. To meet the travel needs of the individual and to help him get back into normal living, the home and vocational or school situation should be reviewed. Special travel requirements are then set up to simulate contemplated post-hospitalization experiences.

This fifth installment of the article on rehabilitation technics with braces and crutches presents the methods of performing travel activities used by many individuals with complete or partial paralysis of the lower trunk and both lower extremities. The authors analyze the technics of opening and closing a wheelchair, getting in and out of an automobile, ascending and descending bus steps, and ascending and descending train steps. Detailed instructions and numerous illustrations are included in this article. The technics described should be considered as basic methods which can be modified for persons with more involved residual physical disabilities.

A Treatment of Cerebral Palsy: Based on the Analysis of the Patient's Motor Behavior

Karel Bobath, M.D., and Berta Bobath, M.S.C.P. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE, 15:5:107, May 1952.

This paper describes the motor disorders of patients suffering from cerebral palsy. It shows that their postures and movements consist basically of typical reflex patterns, which are modified in a characteristic manner by the patient's efforts to move in spite of the handicap. An account is given of the use made by contemporary methods of treatment of these reflex patterns, and the value and the limitations of such forms of treatment are discussed. The paper concludes with the outline of a treatment which is based on the teaching of inhibitory control, leading to a breaking up of these reflex patterns.

Exercises Following the Bankart Operation for Recurrent Shoulder Dislocation

J. L. Rudd, M.D., and E. F. Haydock, B.S. In ARCHIVES OF PHYSICAL MEDICINE, 33:6:353, June 1952.

This study was undertaken to determine whether postoperative exercises for recurrent shoulder dislocations resulted in an earlier increase in the range of shoulder motion, greater improvement in gains in strength and a decrease in the length of the average recovery period in comparison with cases which did not receive similar supervised activity.

In the Naval hospital patients were returned to full duty immediately after hospitalization was completed. An accelerated activity schedule was given them after the Bankart operation. This took place under closer supervision and for a longer time than was permitted for patients of the nonmilitary institution who were used for comparison.

In the nonmilitary group the patient left the hospital as soon as the wound had healed and the stitches were out. General shoulder exercises were advised, on an outpatient basis, on an average of 4.4 weeks postoperatively. Since the main objective at this hospital is to get the patient out after operation as quickly as possible, with maximum benefit, a shorter stay is imperative and little or no daily, progressive, supervised corrective therapy can be administered. It is safe to say that most individuals sent home to do postoperative shoulder exercises do not do daily, progressively increasing activity. They neglect many of their exercises and substitute muscles that are not to be used, they do not have the equipment found in most departments of physical medicine and they fail to remember many of the instructions given them describing motions needed for increasing and strengthening the shoulder girdle.

It took only two and a half months for return to duty by the sixteen cases exercised under supervision, while it took five months for the twenty-four cases who were told to do shoulder exercises at home.

The planned program of supervised activity in postoperative Bankart cases resulted, in sixteen of the forty cases studied, in better shoulder motion and strength as well as a quicker return to duty than "exercise-advice" without daily supervision.

Probable Cause of Low Back Pain Among Bus Drivers

A. H. Woolfson, M.C.S.P. In PHYSIOTHERAPY, 38:6:101, June 1952.

During the course of the physical therapy treatment of a number of bus drivers suffering from low back pain, Woolfson observed that many of the patients complained of similar symptoms. Onset of the disease in most of the patients also was very similar: feeling of tiredness with an ache down the lower part of the back with marked stiffness of the lumbar spine, with an acute pain on bending forward, which in most cases incapacitated them from work.

These symptoms sooner or later brought them to the Orthopedic Department where diagnosis and treatment was established. Most of these patients were referred for rehabilitation, and the treatment consisted of manipulation, massage and a course of remedial exercises covering a period of from four to five weeks, after which 75 percent of the patients improved and were able to resume their work. However, a good number of these patients returned with recurrent symptoms for further treatment within a period of six to nine months, with the same story. It was then that Woolfson decided to investigate the cause.

Woolfson questioned the drivers and even took trips with them to make his own observations. Then he made the following recommendations to correct the posture of the bus drivers in their work:

(1) The driver should be taught the importance of relaxation at the wheel.

(2) The driving seat should be re-designed to give full back rest.

(3) It is important that a small driver should not be made to drive a large bus; neither should a large heavily built man be asked to drive a small bus.

(4) Drivers should take courses of remedial exercises.

(5) The loads carried by the buses should be reduced.

(6) There should be enforced periods of rest for the drivers between journeys.

Foreign Abstracts and Reviews . . . .

Physical Training for the Bodily Injured (Liebesübungen mit Korperbeschädigten). *By Hans Lorenzen, Director of the Academy of Sports, Koln-Mungersdorf. Price, $1.80. Pp. 218; illus. 182. Medico-Social Publication Series "Work and Health." Vol. 45, George Thieme Verlag, Stuttgart, Germany, 1951. Distributed by Grune and Stratton, Inc., New York, N. Y. (Translated and reviewed by Signe Brunnstrom, author of many publications on rehabilitation of the amputee. Formerly, Director of Physical Therapy, Kessler Institute for Rehabilitation.)*

The author, Hans Lorenzen, Director of the Academy of Sports, Köln-Müngersdorf, is a well known German educator and sports instructor. Drawing on a life time's experience in the rehabilitation of the physically handicapped, civilians as well as veterans of two world wars, he is well qualified to write a book of this kind. The subject matter is discussed both from the standpoint of basic philosophy of rehabilitation and from a technical point of view.

In Germany, during the last decades, the tendency has been away from standardized exercises (Zander machines for example) to physical training out-of-doors, with great emphasis on sports. "Sportsmedizin" dates back to 1908, when this branch of therapy was first practiced at the August-Bier clinic in Berlin. In 1913 a "sportsmedical" consultation service was established in Berlin-Grünewald. This new branch of medicine was tested and proved its value during and after the first world war.

A model physical training hospital was established in Görden near Brandenburg a.d. Havel, which served as an example and inspiration for the entire country. During the second world war an Institute for postgraduate training in Movement Therapy was established in Berlin-Britz, the purpose of which was to train physicians and physicians' assistants on a nationwide basis. Approximately at the same time, university courses in Movement Therapy were established under the direction of Dr. W. Kohlrausch. As a result of this development all orthopedic hospitals in Germany now make use of gymnastics and sports for the injured. Lately, "sport therapy" has also been applied to internal medicine.

Physical Training for the Bodily Injured is intended to serve as a text book for sport therapy instructors at hospitals, but its author makes an appeal for its use on a much broader basis. He proposes the establishment of sport facilities for the physically handicapped in every community under the auspices of state, local, or private agencies.

Experience has shown, so the author states, that much of the benefit derived from movement therapy at hospitals is lost within a year's time, if there is no carry over of activities after the patient has been discharged from the hospital. Leg amputees, for example, acquire poor walking habits, feel insecure and hesitant, and tend to rely increasingly upon the assistance of others. They become accident prone, and, worst of all, the psychological outlook of the amputee takes a turn for the worse. The inferiority complex which more often than not was overcome at the hospital tends to return, and becomes a serious problem.

Although millions of service men were discharged from military hospitals and are now drawing disability benefits, very few opportunities for sports are provided for these men. The physically handicapped among civilians, of which there is a large group, also would greatly benefit from organized physical activities. The author proposes the establishment of a central organization to assist the communities in establishing sport facilities for the handicapped, and he also urges the handicapped to take the initiative themselves.

It is pointed out that the proposed organizations are for handicapped *healthy* people. Sports for the healthy handicapped is not to be considered a treatment and need not necessarily be under medical supervision, as is the case in hospitals. Unreasonably high qualifications should not be required of the instructors, particularly since highly trained specialists are not available in sufficient numbers. The author feels that, to a large extent, instructors can be found among the handicapped themselves. It is not essential, or even desirable, that the instructor is highly skilled himself. Ideally, he should be just a little bit ahead of his pupils, so that his accomplishments seem within their reach. The book is intended to serve as a guide to these lay instructors.

The subject matter is arranged in three parts. Part I deals with organization and methods. Part II discusses general conditioning, exercises for specific therapeutic purposes, gymnastics and games. Part III, some seventy pages, is devoted to aquatics.

Throughout the book a great deal of attention is given to the training of amputees. There are many excellent photographs and descriptions of gymnastic stunts, athletics, games and sports. Special sections deal with stump exercises, phantom limb training, foot exercises, and gait training. A list of top performances of amputees, such as hopping contests, high and broad jumping, figure skating and skiing is given, but the author points out that competetive sports are only for a comparatively small number; most amputees engage in physical activities to keep in good shape, for recreation, and for the sake of social contacts. Swimming, diving, and life saving technics for the handicapped are particularly well described and illustrated.

This publication is highly recommended reading for all those who deal with the physically handicapped as well as for the handicapped themselves. Persons who do not read German would derive considerable benefit from studying the many excellent photographs which accompany the text.

The book is available through Grune and Stratton, Inc., Medical Publishers, New York.

Psychological Problems of Cerebral Palsy. *Paper binding; price, $1.25. Published by National Society for Crippled Children and Adults, Inc., 11 South LaSalle Street, Chicago 3, Illinois, 1952.*

The proceedings of the first symposium ever held to consider exclusively the psychological aspects of cerebral palsy, contained in this booklet, brings together the important papers of outstanding psychologists presented at that meeting.

The contents of the book include "Some Anatomical Facts Related to Spasticity," by Dr. Douglas Buchanan, Division of Neurology, University of Chicago, with Mr. Cleon Truitt, Division of Child Study, Chicago Board of Education, discussant; "The Psychological Ap-

praisal of Children with Cerebral Palsy," by Dr. Charles R. Strother, professor of clinical psychology, University of Washington, with Dr. Phyllis F. Bartelme, psychology consultant for the National Society, discussant.

"Group Counseling with Parents of the Cerebral Palsied," by Dr. Harry V. Bice, psychologist, Crippled Children's Commission, Department of Health, State of New Jersey with Dr. Isidor W. Scherer, chief clinical psychologist, U.S. Veterans Hospital, Northampton, Massachusetts, discussant; "Distinction Between Cerebral Palsy and Neurophrenia," by Dr. Edgar A. Doll, coordinator of research, Devereaux Schools, Devon, Pennsylvania, with Dr. Meyer A. Perlstein, chief, Children's Neurology Clinic, Cook County Hospital, Chicago, discussant.

"Educational and Vocational Planning for the Cerebral Palsied Child," by Dr. T. Ernest Newland, College of Education, University of Illinois, with Ann E. Heilman, University of Illinois, Undergraduate Division, discussant. Dr. Doll summarized all five papers and discussions.

A more detailed review will appear in a future issue of the *Review*.

Book Reviews . . . . .

Clinical Application of Recreational Therapy. *By John Eisele Davis, Sc.D., Chief Corrective Therapy, Veterans Administration, Washington, D. C. American Lecture Series. Hard Cover; price, $3.75. Pp. 144; illus. 21. Charles C Thomas, Springfield, Illinois, 1952.*

This monograph by the Chief of Corrective Therapy of the Veterans Administration is intended by its author ". . . to present a scientific concept of recreation as an adjunctive therapy being developed within the framework of modern psychiatric practice. It is hoped that it may meet a most evident need for a basic underlying philosophy which recognizes the validity and effectiveness of planned and purposive exercise and activity as an integral part of medical practice"; ". . . to discuss the components of recreation in its relation to mental health, to explore some of the recent developments in medical science and method in which utilization of physical exercise and activities become a most important dynamic component of treatment."

The subject matter of this book is poorly organized, being broken into forty-six short sections with much overlapping and repetition. Thus the functions of recreational therapy are dealt with in at least four different places and "dynamics" in at least six. The designation of four of the sections as "Psychodynamics of Recreation," "The Analytic Viewpoint," "Dynamic Analytic Concepts," and "Psychoanalytic Concepts" reveals both the poor organization and the quality of the psychiatric theory.

The author fails to make a sharp distinction between play therapy, used as a psycho-therapeutic tool in child psychiatry, and recreational therapy; in fact, he seems to regard the two as identical. This, together with the fact that all the illustrations and case histories refer to adults, creates the impression that the author has borrowed the laurels of play therapy to bolster up his own material. It is presumably this confusion of thought that is responsible for the claim on the dust jacket that the book is intended "for psychologists and psychiatrists undertaking psychological treatment of children." Psychologists and psychiatrists are not likely to take seriously the comparison between psychodrama and recreational therapy or grandiose statements such as, "There are probably few areas of activity in which there is greater opportunity for valid treatment of many mental conditions and psychosomatic aspects of physical illnesses than in recreational therapy." Some statements are inaccurate, for example, ". . . Insulin shock is especially effective for the relief of tension associated with depressive states," and, referring to leucotomy, ". . . even though the mind and memory are relatively unaffected by the operation . . ."

It is regrettable that the idea should be perpetuated that the depressed person should be provided deliberately with unpleasant, repetitious, tedious exercise and activity to relieve his guilt feelings, and that activities for such patients should be modified deliberately to make them monotonous or boresome. Punishing a patient, even because of a theoretical belief, shows both lack of understanding of the depressed patient and a false application of theory, and will hardly recommend itself to anyone with a feeling for human dignity.

The illustrations are interesting and adequately explained, except in the section on art, where highly symbolic, presumably schizophrenic, paintings are presented without attempt at explanation. The specimen forms should be relegated to an appendix.

It is a pity that the bad points of this book tend to obscure the undoubtedly high quality of the work upon which it is based, as indicated by the constant emphasis on recreational therapy as being something more than the routine performance of physical activity. Recreational therapy is properly presented as an interpersonal and social relationship involving the patient, other patients and the therapist, a relationship which can be modified by a properly trained therapist to meet the attitudes and treatment needs of the patient.

Treatment by Manipulation and Deep Massage (Volume II of Textbook of Orthopaedic Medicine). *By James Cyriax, M.D., B.Ch. (Contab.) Physician to the Department of Physical Medicine, St. Thomas Hospital, London. Fourth edition. Cloth; price, $6.00. Pp. 335; illus. 111 plates and 10 figures. Paul B. Hoeber, Inc., New York, N. Y., 1951.*

Books on massage are difficult to write because a description of a method without a moving visual aid is like a demonstration of Indian club swinging by radio. Doctor Cyriax has succeeded admirably against this handicap.

His new edition is thoughtful and thought-provoking; it is a well written and freely illustrated book on massage that will displease some of the old-time adherents to the classical systems, and to others will give stimulus for modification of existing methods. One could question the transverse direction of the stroke as being much more painful to the patient than the longitudinal stroke in the direction of muscle fibers, and also less informative as to the condition of the muscle; and one could argue against his theories as to the effect of massage; but, since such theories are largely conjectural and are not nearly as important as the clinical results, they do not matter so much except in helping to de-

cide *when*, and direct *where*, to massage.

To this reviewer the main force of Doctor Cyriax's book is the emphasis on diagnosis as applied to massage. For this reason it should be read by all who are doing or directing physical treatment. Especially is this true for the specialist in physical medicine.

A large part of the book is concerned with manipulation. The inclusion of manipulation automatically makes it a book for medical graduates who, alone, should do the major manipulations described.

Most of the directions are standard, but the manipulator's posture as depicted on Plate 10, page 70, cannot be condemned too strongly. Here the manipulator is hanging with a drowning man's grip on the head of the patient, his own body weight suspended in a way that gives him no control of the force he is exerting. If one should happen to open the book at this page it would give an unfair impression of the quality of the whole book.

Another important feature of the work is the number of instances where forceful passive movement is described and illustrated. These will be useful to the therapist in offering variations in procedure to fit different cases. It is equally useful and important in bringing it to the attention of the prescribing physicians, who have not made use of this invaluable and really necessary agent.

Doctor Cyriax mentions that passive movement is "under a cloud." He does not stress sufficiently that over enthusiasm and, especially, unskilled use of the measure, has produced the cloud. Really full, general instructions in the administration of this movement, and emphasis on the avoidance of joint reaction might well have been given and made for the purpose of dispersing the cloud. It is true that the usual, and surely by this time, the unnecessary warning about passive movement of elbows has been given, and the "bug bear" of myositis ossificans has been exhibited again. This credo of some surgeons has never to this reviewer contained the menace intended, and elbows continue to receive adequate, albeit considerate, passive movement, when needed.

The inclusion in Part Three of the treatment of varicose ulcers using the Danish method of massage, pressure and exercise, is interesting and worthy of trial, but the quotations of results are more optimistic than those of others who have tried the method.

Nearly everyone reading this book will find bits that may not be accepted easily, but many valuable answers will certainly be met. Those with minds sufficiently open, after accepting some parts without question, will find other parts that will challenge them to a trial, resulting, perhaps, in subsequent conviction.

Medical Milestones. *By Henry J. L. Marriott, M.D. Foreword by Sir Alexander Fleming. Hard cloth; price $3.50; pp. 293. Published by the Williams and Wilkins Co., Baltimore, 1952.*

Medical Milestones has been written with a two-fold purpose:

1. To collect in one volume the major medical advances and to present them in a readable form.

2. To give to the medical and the nonmedical public the entertainment and drama of the stories of modern research without sacrificing truth and the authoritative facts of the research.

The author has accomplished his purposes by presenting to the public a well organized and clearly written book. It reviews the historical background of the newer drugs and therapies of the past decade. It is carefully cross indexed and has many interesting footnotes, especially with regard to the derivation of words.

The material is of necessity limited to the latest research viewed with a scientific appraisal of its advantages and disadvantages as proven by clinically controlled studies. For example, the story of the antibiotics and of the work done by Fleming, Waksman, Burkholder, Ainsworth, Finley et al, is written in a most interesting manner yet it is scientifically sound. Other recent advances described are ACTH and cortisone—with the hopes and fears of the arthritic as to their use—the successes and failures of Dicumarol, the Sulfones, BAL, Dramamine, the Rh factors, and modern heart surgery.

An effort has been made by the author to present to the public all of the facts and to stress the wisdom of accepting with reservations the superlative and premature praises of the press which may herald each new find in medicine as a panacea. He reminds the reader to discriminate between scientific experiments on animals and on man. It is emphasized that only time can prove the value of many of these drugs and medications, as well as their unexpected side effects and disadvantages.

This book is recommended for physical therapy school libraries as a quick and easy reference for the newer drugs and therapies.

Cowdry's Problems of Ageing: Biological and Medical Aspects. *Edited by Albert I. Lansing, Ph.D., Associate Professor of Anatomy, Washington University School of Medicine, St. Louis, Missouri. Third edition. Hard Cover. Price, $15.00. 1,061 pages. The Williams & Wilkins Company, Baltimore, 1952.*

Dr. Lansing has done a good service in organization of the accounts of forty-eight gerontologists in this new edition of a standard work. These reports express the opinions of the contributors as to the significant trends and advances of work during the past ten years on the normal and pathologic aspects of aging.

The book is divided into three sections: (1) biological and cellular problems of aging, (2) clinical and organic problems of aging, and (3) social and economic problems of aging. While the topics are well covered and will be of value primarily for reference, the chapter, "Rehabilitation for the Chronically Ill and Aged," probably is most pertinent to the physical therapist. This chapter deals with the general aspects of rehabilitation of the aged patient, rather than with specific technics.

Illustrations are good but few in number.

Tables add to the clarification of the work. The bibliographies, at the end of each chapter, are extensive.

This book will be of value to physical therapy students only on a supplementary basis. It should be of particular value as a reference to physicians who are confronted with problems associated with the care of the aged.

Manual Lifting and Handling. *By T. McClurg Anderson. Paper cover; price, 2S. Pp. 28; illus. 31. Publisher—Industrial Welfare Society, Inc. in Association with The Central Council for Physical Recreation—48 Bryanston Square, London W. 1, November 1951.*

This twenty-eight page booklet which is prepared for the industrial

worker presents principles of lifting and moving with application to specific activities such as lifting and stacking heavy boxes and bags, pushing a truck, and moving a heavy drum. The methods advocated for safe lifting stress the importance of key factors in movement, which are proper foot positions, proper hold, straight back, chin in, arms in to body, and use of body weight. Explicit directions are given regarding these factors in each instance. The technics recommended are excellent but the explanations of the reasons underlying these technics are open to question.

In the author's opinion the most common cause of injuries due to lifting is lack of elasticity in body tissues which is "associated with (a) excessive tension in the connective tissues of the body and (b) excessive tension in muscle fibers." The latter, he attributes to unusual types of movement, emotional states, insecure hold, discomfort, lack of balance, and unstable joints.

Much of the material in the booklet would be more effective if organized differently. The directions for performing activities become somewhat involved with fundamental conceptions of movement and with analyses of good and poor method of performing the activities.

The Clinically Important Reflexes. *By Friedrich Wilhelm Bronisch, M.D., Instructor, University of Heidelberg. First American edition. Revised and enlarged by Clemens E. Benda, M.D., Boston, Mass. Cloth; price, $4.75. Pp. 88; illus. 49. Grune and Stratton, New York, 1952.*

This is a useful little monograph for medical students and teachers of neurology. It presents in a simple, clear and concise form the various reflexes used in clinical neurology. The manner of elicitation, reaction and meaning of each is presented with the use of uncomplicated diagrams. One finds the proper names and references for the reflexes, which should help to correct many erroneous labels used loosely.

Although the author has described most of the common reflexes there are some omissions, but this is not important. There are a few other criticisms which are not significant enough to detract from the value of the monograph as a whole. It has been printed in a page of half-length and full width which makes it awkward for any library. It could be just as effective in the conventional form. There are some dogmatic statements which imply significance and would be better omitted, e.g. on page 23 in referring to the various types of Chvostek's sign he says type "II and III are also seen in cases of tuberculosis, epilepsy and in states of increased irritability" which makes it quite insignificant. The description and clinical significance of labyrinthine and postural reflexes could be elaborated.

Functional Neuro-anatomy. *By A. R. Buchanan, M.D., Professor of Anatomy, University of Colorado School of Medicine, Second edition; price, $7.50. Pp. 323, illus. 273. Lea and Febiger, Philadelphia, 1951.*

Dr. Buchanan's revision of his text on neuroanatomy is an improvement over his very excellent first edition which appeared two years ago. The author is a professor of anatomy at the University of Colorado, School of Medicine, where the pattern of much basic science teaching is the integrated plan of function, composition, and practical significance. He has used this pattern of instruction for a number of years. This experience supplies particular qualification for writing a text on neuroanatomy with a functional approach.

The book is divided into 19 chapters which are briefly and clearly written. The over-all outline is fairly classic in design for a text on neuroanatomy except that each description of structure is blended with its functional significance for the normal, and then discussed for its abnormal function. Pathways are discussed in their entirety from their earliest mention in the book. A discussion of too many conflicting views and theories is avoided. Illustrations are liberally included, and use is made of both classic figures from Gray, Sobotta-McMurrich and others. There are also excellent original line drawings, which have been specifically prepared for this text.

A valuable addition to this second edition of Dr. Buchanan's text is a complete atlas of the brain stem prepared from a series of Weil stained sections. The book will be an excellent text for neuroanatomy courses for physical therapy students. While it cannot be considered elementary it is brief, uncomplicated, and clearly presented. Advanced students will find a need for additional sources of information in the field of neuroanatomy.

Body Dynamics. *By Eleanor Metheny, Ph.D., Professor of Education and Physical Education; University of Southern California. Hard cover; price, $3.50. Pp. 225, illus. 55. One of the books in the McGraw-Hill Series in Health Education, Physical Education, and Recreation. McGraw-Hill Book Co., Inc. New York, 1952.*

The author believes the principles of which she writes and has practiced them for eight years with high school, college, and adult groups interested in increasing their own fitness for daily living; "The fundamental principles for efficient functioning of the human body can be taught simply to intelligent persons who have no scientific knowledge of anatomy and physiology, and an understanding of these principles can motivate personal action which results in improved physical efficiency."

The author's idea is well taken and worthy of her effort to present a phase of physical education which has received little practical emphasis though it is fundamental to all body control to secure "maximum results with minimum effort." We have failed to teach good, functional body alignment which carries through the daily life and adds to the individual's physical safety and aesthetic appearance.

The possibility, desirability, and necessity of developing efficient body control during expenditure of energy, for relaxation, to relieve menstrual pain, to control weight, and an understanding of the limitation of exercise in controlling these factors touches many fields and phases of student instruction and holds adult interest outside any school situation. Physical therapy students should benefit from being taught "dynamic" body control, and physical function in relation to the practice of physical therapy. We all like to have energy to play after a day's work is done.

In simple, nontechnical language the author assembles the minimum essentials of body mechanics necessary to the practical application of the principles of exercise and movement to every phase of the life of the individual.

The section on Conservation of Energy is particularly applicable to physical therapists in their work.

An appendix lists representative exercises to develop muscle tone and the kinaesthetic sense of balance in the body. At the end of each section there is a list of projects to stimulate personal interest and to demonstrate how information given in the section can be applied.

The book is designed primarily for use as a textbook for college freshmen in general physical education classes, but it is written also for the general adult reader. "Reading a book such as this one helps supply the understanding of the "how" and "why" of basic body movements, but the time and persistence must come from a person's own desire to change a poor habit into a better one." Miss Metheny succeeds in making the objective of an obedient body an attainable personal challenge.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

Meet Our New Contributors

(Continued from page 513)

LaVonne Jaeger, Physical Therapist, Mary Free Bed Convalescent Home and Orthopedic Center, was graduated from the University of Minnesota in 1951 with a B.S. degree in physical therapy.

Miss Jaeger is a member of the American Physical Therapy Association and of the American Registry of Physical Therapists.

Dorothy Jarvis, Chief Physical Therapist, Sacred Heart Hospital, Spokane, Washington, attended Washington State College and was graduated in 1943 with a B.S. degree in physical education.

Shortly after graduation, Miss Jarvis enlisted in the Army and in 1944 received her physical therapy certificate from Brooke General Hospital at Fort Sam Houston, Texas. She served as physical therapist in the U. S. Army Medical Corps until 1948. She holds a master's degree in physical therapy from Stanford University, awarded in 1950. Miss Jarvis is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

Margaret M. Prior, Physical Therapist, Mary Free Bed Convalescent Home and Orthopedic Center, attended the University of Wisconsin, where she was graduated in 1950 with a B.S. degree in physical medicine.

Before accepting her present position, Miss Prior was Physical Therapist, Monroe Public School System, Monroe, Michigan. She is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

Col. Emma E. Vogel, who holds a diploma from State Teachers College in Mankato, Minnesota, received her physical therapy certificate from Reed College, Portland, Oregon, under an emergency physical therapy training program of World War I.

As her outstanding qualifications for leadership in the field of physical therapy were recognized, she was appointed to many key positions. Colonel Vogel was Supervisor of Physical Therapists, Walter Reed General Hospital, Washington, D. C., 1919-1942; Superintendent of Physical Therapists, Office of The Surgeon General of the Army, 1942-1943; first Director of Physical Therapists of the Army, Office of The Surgeon General of the Army, 1943-1947; first Chief of The Women's Medical Specialist Corps of the Army, Office of The Surgeon General of the Army, 1947-1951.

Colonel Vogel has a long and distinguished record of service with the Army Medical Service, and was awarded the Legion of Merit for organizing the Physical Therapist Branch and for formulating policies to insure the highest standards for treatment of the sick and wounded. On the occasion of her recent retirement from the U. S. Army, Major General Norman T. Kirk, retired, former Surgeon General of the Army, stated, "No woman, either as a civilian employee of the Medical Department, or a commissioned officer in one of its Corps, has made the contribution to the Medical Department that you have made."

Colonel Vogel is a charter member of the American Physical Therapy Association, a member of the American Registry of Physical Therapists, and a member of the Association of Military Surgeons of the United States. She organized the first Women's Medical Specialist Corps Section of this Association, and served as Chairman of the Section for three years.

On October 1, Colonel Vogel left Washington to make her home in Florida.

Schools of Physical Therapy

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS
OF THE AMERICAN MEDICAL ASSOCIATION

Graduates of these schools are eligible for membership in the American Physical Therapy Association.

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
CALIFORNIA					
[1]**Childrens Hospital Society,** Los Angeles (in affiliation with University of California, Los Angeles)	Samuel S. Mathews, M.D. Mary J. Dodge	a[2]-b[2]-d-e g[4]	14 mo **4 yrs**	Sept	Certificate Degree
[1]**College of Medical Evangelists,** Loma Linda	F. B. Moor, M.D. R. Wm. Berdan	a-b-c-d-e g	15 mo 4 yrs	Sept	Certificate Degree
[1]**Univ. of So. California,** Los Angeles	Charles L. Lowman, M.D. Charlotte W. Anderson	a-b-d-e g[4]	14 mo 4 yrs	Sept Sept-Feb	Certificate Degree & Cert.
[1]**Univ. of California Medical School,** San Francisco	Lucile M. Eising, M.D. Margery Wagner	d-e g	12 mo 4 yrs	Sept-Feb	Certificate Degree
[1]**Stanford Univ.,** Palo Alto	Wm. Northway, M.D. Lucille Daniels	a-d-e-f g[4]	12 mo 4 yrs	Jan-June or Sept	Certificate Degree
COLORADO					
[1]**Univ. of Colorado Medical Center,** Denver	Harold Dinken, M.D. Dorothy Hoag	a[2]-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
ILLINOIS					
Northwestern Univ. Medical School, Chicago	Emil D. W. Hauser, M.D. Elizabeth C. Wood	a-b[2]-d-e	12 mo	Oct	Certificate
IOWA					
[1]**Univ. of Iowa,** Iowa City	W. D. Paul, M.D. Olive C. Farr	b-e	12 mo	Sept	Certificate
KANSAS					
[1]**Univ. of Kansas School of Medicine,** Kansas City	Donald L. Rose, M.D. Ruth Monteith	a-b-d-e g[4]	12 mo 4 yrs	Feb-Sept	Certificate Degree
MASSACHUSETTS					
Bouve-Boston School, in affiliation with Tufts College, Medford 55	Howard Moore, M.D. Constance K. Greene	g[4]	4 yrs	Sept	Degree
Simmons College, Boston	{Wm. T. Green, M.D. {Arthur L. Watkins, M.D. Shirley Cogland	a[2]-b-d-e g[4]	16 mo 4½ yrs	Sept	Diploma Degree
Boston Univ., Sargent College of Physical Education, Cambridge	Kenneth Christophe, M.D. Adelaide McGarrett	a-b-d-e f-g[4]	12 mo 2 or 4 yrs	Sept	Certificate Degree
MINNESOTA					
[1]**Univ. of Minnesota,** Minneapolis	Frederic J. Kottke, M.D. Ruby Green Overmann	d-f-g[4]	2 yrs	Sept	Degree
[1]**Mayo Clinic,** Rochester	Earl C. Elkins, M.D. Darrell Hunt	a-b-c-d-e	2 yrs	Sept	Certificate
MISSOURI					
[1]**Washington Univ. School of Medicine,** St. Louis	Sedgwick Mead, M.D. Beatrice F. Schulz	f-g[4]	2 or 4 yrs	Sept	Degree
[1]**St. Louis Univ. School of Nursing,** St. Louis	A. J. Kotkis, M.D. Sr. Mary Imelda	f-g[4]	2 or 4 yrs	Jan-Sept	Degree

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
NEW YORK					
Albany Hospital, Albany (in affiliation with Russell Sage College, Troy)	John W. Ghormley, M.D. Gladys Woods	a-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
[1]**Columbia Univ.,** New York	Wm. B. Snow, M.D. Mary E. Callahan	a-b[2]-e f	12 mo 2 yrs	Sept	Certificate Degree
[1]**New York Univ., School of Education,** New York	George G. Deaver, M.D. Elizabeth C. Addoms	a[3]-b[3]-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
NORTH CAROLINA					
[1]**Duke Univ., School of Medicine,** Durham	Lenox Baker, M.D. Helen Kaiser	a[3]-b[3]-d-e	15 mo	Oct	Certificate
OHIO					
[1]**Cleveland Clinic,** Cleveland	Paul A. Nelson, M.D. Dorothy Sparks	a-b-d-e	12 mo	Oct	Certificate
PENNSYLVANIA					
[1]**D. T. Watson School of Physiatrics,** Leetsdale	Jessie Wright, M.D. Kathryn Kelley	a[3]-b[3]-d-e	12 mo	Oct	Diploma
[1]**Univ. of Pa. School of Auxiliary Med. Serv.,** Division of Physical Therapy, Philadelphia	George M. Piersol, M.D. Dorothy Baethke	e g[4]	12 mo 4 yrs	Sept-Feb Sept	Certificate Cert. & Degree
TEXAS					
[1]**Hermann Hospital,** Houston	Oscar O. Selke, Jr., M.D. Elizabeth McK. Barkley	a-b-d-e	12 mo	Oct	Certificate
[1]**Univ. of Texas School of Medicine,** Galveston	G. W. N. Eggers, M.D. Ruby Decker	a-b-e d	12 mo	Jan	Certificate Degree
VIRGINIA					
[1]**Med. College of Va.,** Baruch Center of Phys. Med., Richmond (in affiliation with Richmond Prof. Inst.)	Herbert W. Park, M.D. Susanne Hirt	a-b-d-e g[4]	12 mo 4 yrs	Sept	Diploma Degree
WISCONSIN					
[1]**Univ. of Wisconsin Med. School,** Madison	Harry D. Bouman, M.D. Margaret Kohli	a-b-c-e-f g[4]	12 mo 4 yrs	Sept Sept-Feb	Certificate Cert. & Degree
U. S. ARMY MEDICAL SERVICE					
Medical Field Service School, Brooke Army Medical Center, San Antonio, Texas, and Fitzsimons, Walter Reed, or Letterman Army Hospitals	Charles D. Shields, Lt. Col., M.C. Agnes P. Snyder, Major, WMSC	e	12[2]	Mar-Sept	Certificate

Entrance Requirements

FOR ONE-YEAR COURSE

a = Graduation from accredited school of nursing.
b = Baccalaureate degree with major in physical education.
c = Two years of college with science courses.
d = Three years of college with science courses.
e = Baccalaureate degree with required science courses.

FOR TWO-YEAR COURSE

f = Two years of college with science courses.

FOR FOUR-YEAR COURSE

g = High school graduation.

Footnotes

[1]Male students admitted.

[2]Apply directly to the Surgeon General, Department of the Army, Washington 25, D. C.

[3]Additional college science credits required.

[4]Advanced standing students accepted.

Please address initial correspondence to the School of Physical Therapy in the institutions listed. Tuition and fees will vary from school to school.

Classified WANT-ADS

WANTED: Qualified physical therapist to work as staff therapist in physical therapy division of a rehabilitation center. Four weeks' vacation, sick leave, social security, and retirement. Contact Director, Rochester Rehabilitation Center, 233 Alexander Street, Rochester 7, New York.

PHYSICAL THERAPIST: Assistant in established public school program. Salary schedule, retirement plan, good working conditions. Ten or twelve months employment as you prefer. Apply to: Assistant Superintendent, Lansing Public Schools, 419 N. Capitol Avenue, Lansing, Michigan.

PHYSICAL THERAPIST, qualified, wanted in 113-bed hospital located near Chicago, Illinois. Newly organized and active department. Excellent salary, vacation and sick leave policy. Apply Personnel Director, Highland Park Hospital, Highland Park, Illinois.

QUALIFIED ASSISTANT PHYSICAL THERAPIST. For 300-bed general hospital. Modern, air-conditioned department. Good salary, complete maintenance. Write Director, James Walker Memorial Hospital, Wilmington, N. C.

WANTED: Physical therapist for private agency in Rehabilitation Center; 40-hour week, good beginning salary, eligible for additional retirement benefits within one and one-half years. Legal holidays and annual vacation with pay. Lee H. Lacey, Goodwill Industries of Dayton, 201 West Fifth Street, Dayton, Ohio.

IMMEDIATE OPENING: Physical therapist for new modern hospital completely equipped. For information regarding salary write: President of Staff, Butte Community Memorial Hospital, Butte, Montana.

OPPORTUNITY for qualified physical therapists in fully accredited 115-bed hospital, specializing in Physical Medicine and Rehabilitation. Medical direction Diplomate, American Board of Physical Medicine and Rehabilitation. Patients mostly children, no acute cases. Excellent salary and working conditions. Mild winters, buildings air conditioned. Write Aline Bletcher, Chief Physical Therapist, Gonzales Warm Springs Foundation for Crippled Children, Gonzales, Texas.

QUALIFIED PHYSICAL THERAPIST: Female nurse with previous experience in orthopedics, to give physical therapy in homes, and orthopedic supervision to staff. Salary open, 5-day week. Inquire Visiting Nurse Association, 614 Davis, Evanston, Illinois.

WANTED: Experienced, qualified physical therapist. New, small polio center in county general hospital with excellent team of doctors. Beautiful pool used early and extensively. Orthopedic and general type patients with new adequate equipment for treatment. Excellent salary, living quarters available, if desired. Friendly hospital and community. Give age, references, date available. Write: Edna L. Dunnebeck, Stanislaus County Hospital, Modesto, California.

The Canadian Arthritis and Rheumatism Society offers interesting employment to qualified physiotherapists in connection with clinics and mobile unit service throughout Canada. Car supplied for mobile service. Application forms are available from the Canadian Arthritis and Rheumatism Society, 270 Maclaren Street, Ottawa 4, Ontario.

WANTED: Qualified physical therapists for work in Cerebral Palsy Department. Opportunity for valuable experience in a well rounded program. Excellent starting salary with annual increases, liberal vacation and sick leave policy. Write: Dr. A. J. Canning, Dir., N.Y.S. Rehabilitation Hospital, W. Haverstraw, N. Y.

WANTED: Physical therapist for Cerebral Palsy School. For information write Mr. Horace Keesey, President, 120 Merion Road, York, Pennsylvania.

WANTED: Qualified physical therapists, male or female. Large well equipped department. Wide variety of cases. Medical supervision—diplomates American Board. Apply: Miss Lorena James, Cook Co. Hosp., Box 191, Chicago 12, Ill.

WANTED: Physical therapist, qualified, female. Physical therapy service in homes, also physical therapy clinics working closely with orthopedic treatment clinics and diagnostic clinics. Excellent starting salary. Car is necessary. Other benefits include two weeks annual sick leave which is accumulative to ninety days, three weeks annual vacation, and a retirement plan. Write: Director, R. L. Loftin, M.D., Bay Co. Dept. of Health, Bay Co. Bldg., Bay City, Michigan.

WANTED: One physical therapist. Agency program offers service to crippled children under medical prescription to patients in the clinic, includes care of cerebral palsy, postpoliomyelitis patients and other crippling conditions. Five day week, liberal holidays, vacation given and sick leave allowance. Write to Mr. Jack H. Foster, Personnel Director, Court House, Arlington, Virginia.

RATES

The rate per insertion is 75c per line. Typewrite your advertisement carefully and count 30 characters and spaces per line.

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It is requested that descriptive adjectives be used instead of actual figures when referring to salary.

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